Grades 9-12 (S)

Duration: 15 min

Tools: one Logifaces Set / 1-2 student

Individual / Pair work

Keywords: Graph, Edge, Vertex

211 - Graph from Shape

MATHS / GRAPHS

LOGIFACES METHODOLOGY

Erasmus+

TEACHER

Logifaces

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DESCRIPTION

1. Every student (or pair) gets a Logifaces set, and builds a continuous surface of their choice.

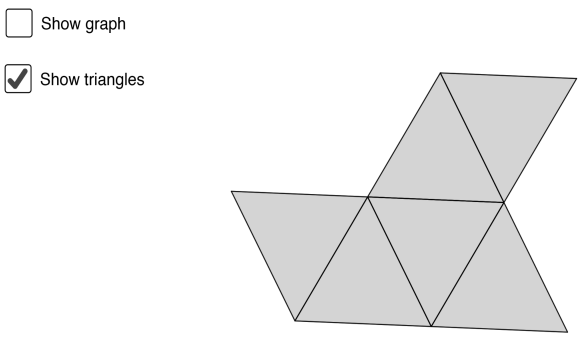
2. Each student puts a tracing paper (or normal paper) above their construction, and draws a point in the middle of each triangle. Teacher explains that these are called the vertices of the graph, and asks them to write 'vertex' pointing to some of them.

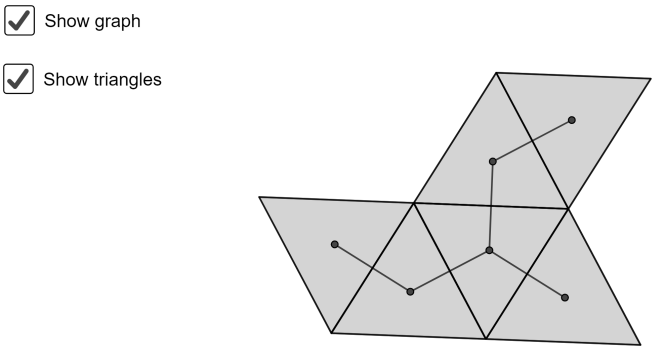
3. Students find two pieces in their construction that touch back to back (with a whole face), and connect corresponding vertices on the paper. They repeat this for all pieces. Teacher explains that these are called the edges of the graph, and asks them to write 'edge' pointing to some of them.

4. Teacher asks students to choose a vertex, and count the number of edges arriving at that vertex. This is the degree of the vertex. Students write the degree to each vertex, and write 'degree' pointing to some of them.

SOLUTIONS / EXAMPLES

Students make drawings like the one shown in the pictures below.





PRIOR KNOWLEDGE

None

RECOMMENDATIONS / COMMENTS

If the teacher wants to continue with the next graph theory exercises 212 - Shape from Graph, they should collect students' graphs with their names at the end of the lesson.

During the session the teacher can ask students the difference between the vertex/edge of a Logifaces piece, and a vertex/edge of their graph.