# Task One

You are going to search for a connection between faces, edges and vertices in 3D shapes (solids).

This connection was first discovered by the Swiss mathematician Leonhard Euler in 1752.

You will need a set of 3D shapes. You could build some of these shapes out of Polydron.

Count the number of vertices, faces and edges in each solid.

Record your results in the table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Solid** | **Vertices** | **Faces** | **Edges** |  |
| Cube |  |  |  |  |
| Tetrahedron |  |  |  |  |
| Square-based pyramid |  |  |  |  |
| Cuboid |  |  |  |  |
| Triangular prism |  |  |  |  |
| Hexagonal prism |  |  |  |  |
| Octahedron |  |  |  |  |
| Icosahedron |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Task Two**

Look for Euler’s connection between the number of vertices, faces and edges in each solid.

*Hint: the number 2!*

**Task Three**

Is this connection true for the pieces of a **Soma Cube**?

Build the pieces out of multilink and test it.