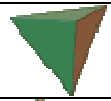
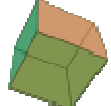


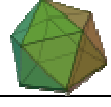
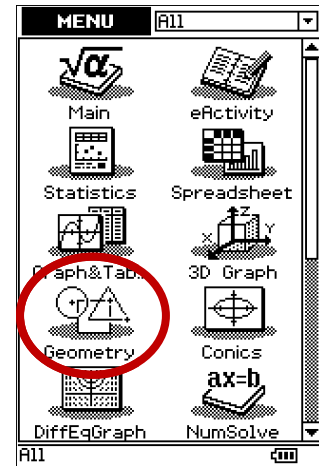


The five platonic solids.

This resource was written by Derek Smith with the support of CASIO New Zealand. It may be freely distributed but remains the intellectual property of the author and CASIO.

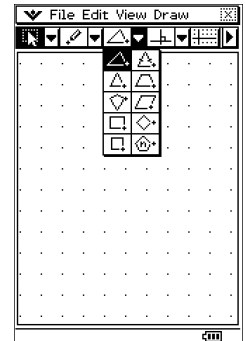
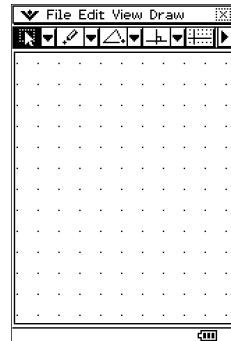
Four of the five convex regular polyhedra were regarded by Plato as symbolising the four elements: earth, fire, water and air, the fifth as a shape that develops the whole universe.

3-D shape		Faces (F)	Edges (E)	Vertices (V)
Tetrahedron		4	6	4
Cube		8	12	6
Octahedron		6	12	8
Dodecahedron		20	30	12
Icosahedron		12	30	20



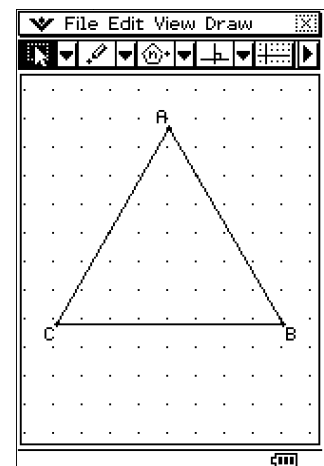
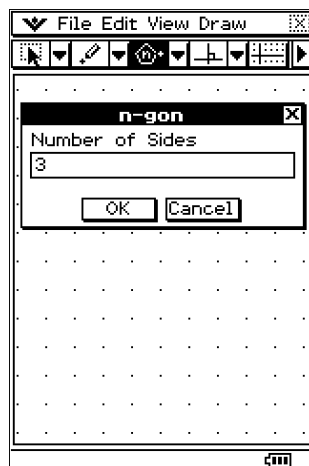
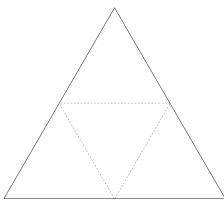
Using the Classpad, you can construct the nets of these polyhedra. From the **MENU** select the **Geometry** icon.


Form a clear working screen, select the n-gon symbol from the polygon drop down menu. Tap on **Edit**, then **Clear All**, then **OK**.



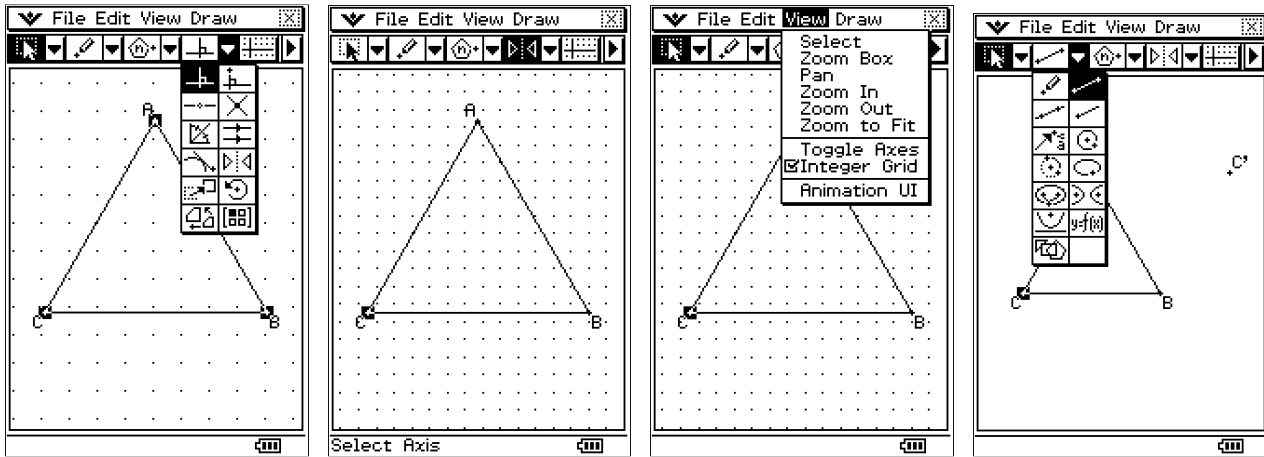
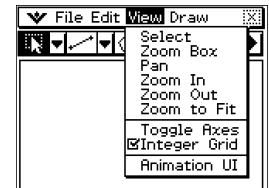
Tetrahedron construction

Enter 3 for the number of sides and select **OK**. Now tap the stylus on the screen. This will construct an equilateral triangle, $\triangle ABC$.

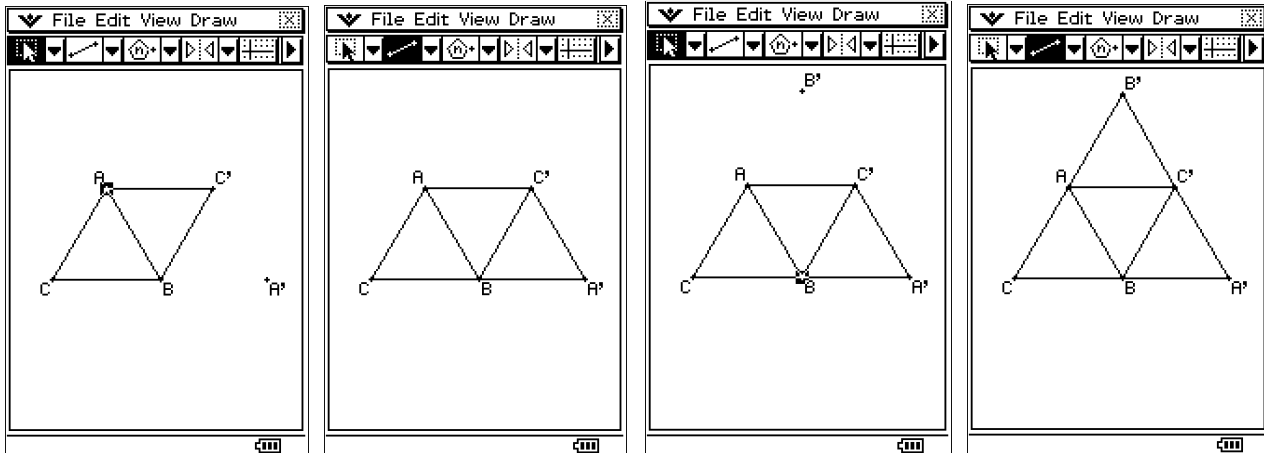


Now construct a reflection of $\triangle ABC$. Select vertex C to highlight the point (vertex) to be reflected. Now select the reflection symbol  from the geometrical construction drop down menu and then select the mirror line AB (you will see 'Select Axis' in the bottom left corner of the screen).

Use 'Zoom to fit' as necessary. Then select the line segment icon from the lines and curves construction drop down menu and connect A to C' and B to C'. [See the screenshots below.]

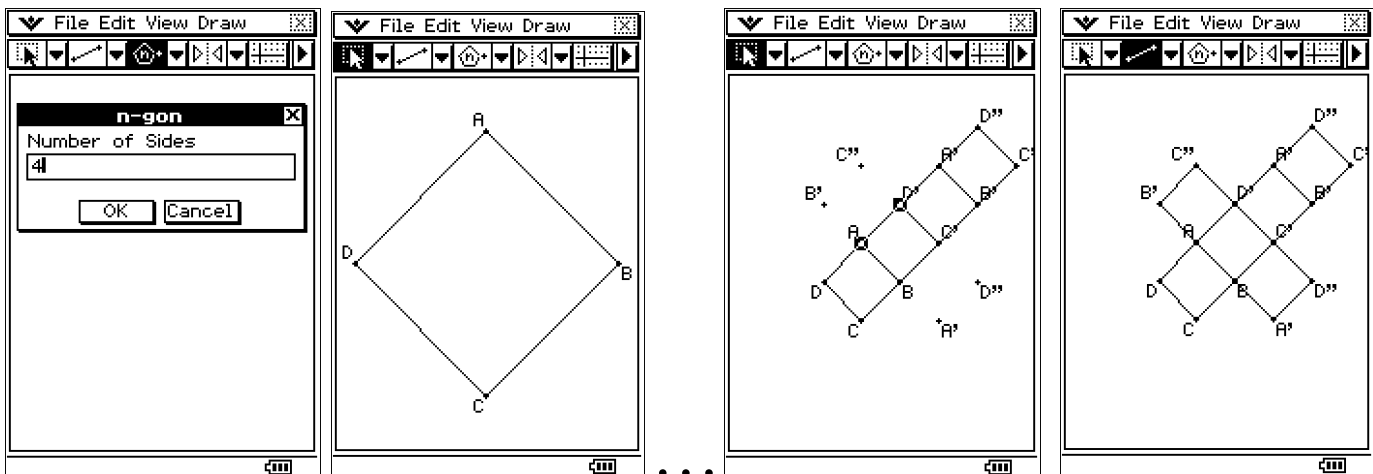


Repeat this process to reflect vertex A in the line BC' and then connect C' to A' and B to A'. Finally, repeat this process to reflect vertex B in the line AC' and then connect A to B' and C' to B'. [See screenshots below.]



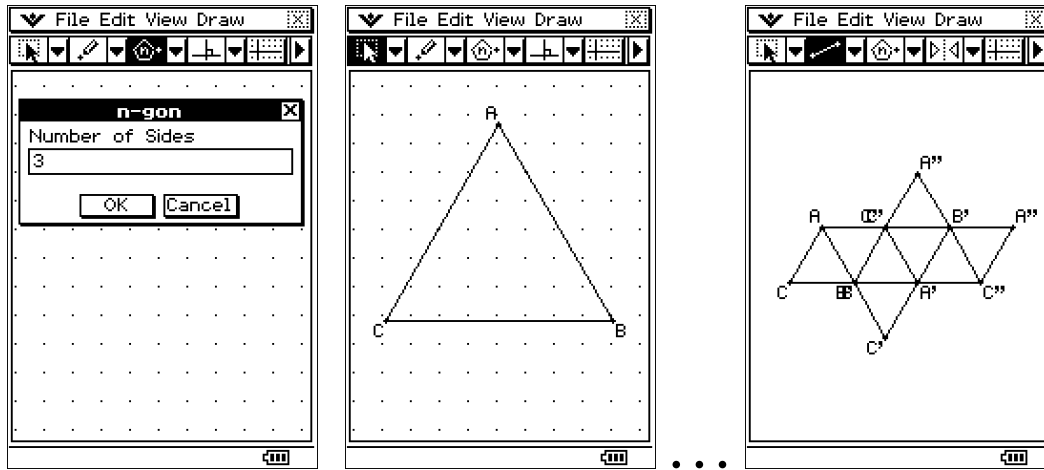
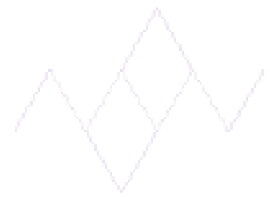
Cube construction

From a clear working screen, select the n-gon symbol from the polygon drop down menu and enter 4 for the number of sides and select OK. Now tap the stylus on the screen. This will construct a square, \blacksquare ABCD.



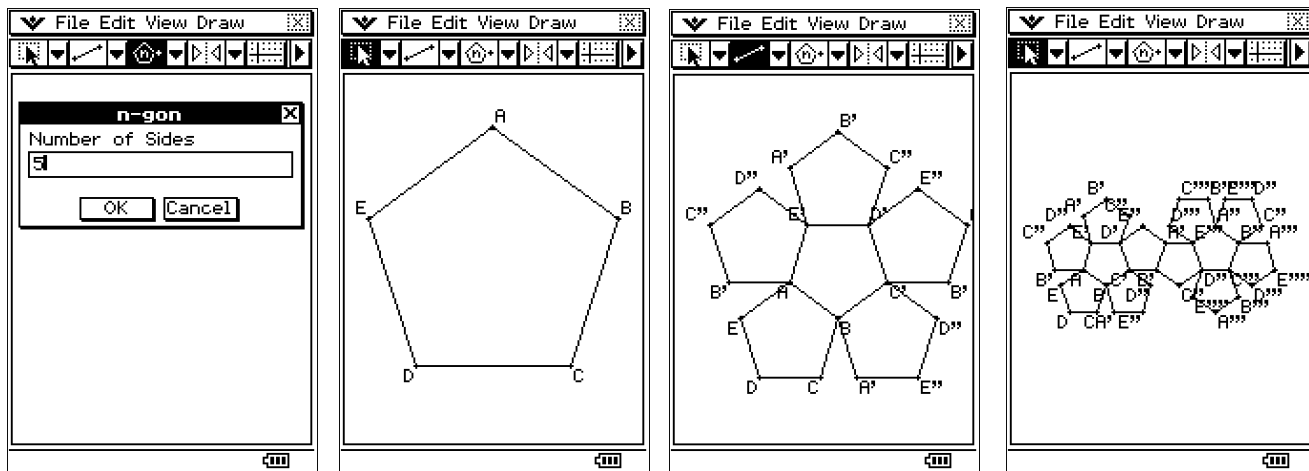
Octahedron construction

From a clear working screen, select the n-gon symbol from the polygon drop down menu and enter 3 for the number of sides and select **OK**. Now tap the stylus on the screen. This will construct an equilateral triangle, $\triangle ABC$.

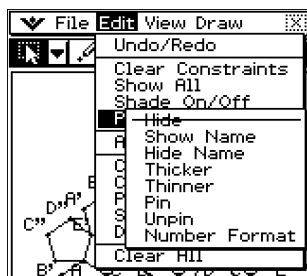


Dodecahedron construction

From a clear working screen, select the n-gon symbol from the polygon drop down menu and enter 5 for the number of sides and select **OK**. Now tap the stylus on the screen. This will construct a regular pentagon, $\triangle ABCDE$.

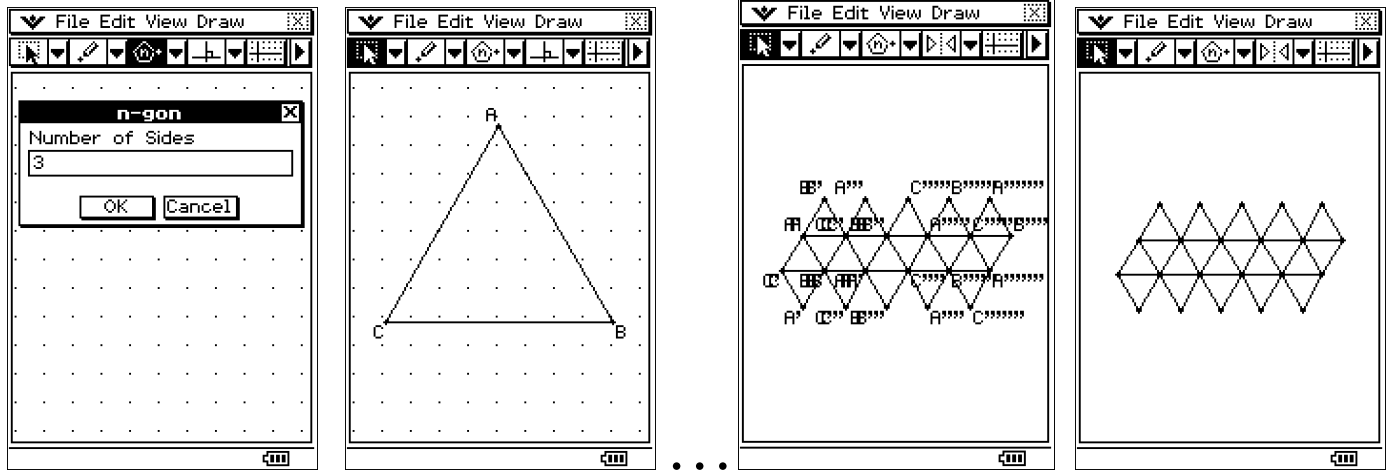
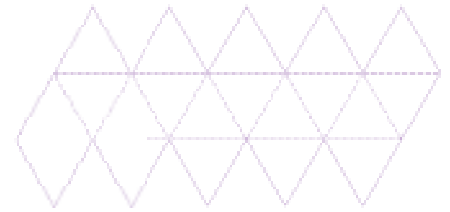


If you do not want the vertices labeled you can hide the name by selecting all of the points and then open the **Edit** drop down and select 'Properties' then 'Hide Name'.

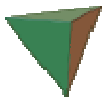
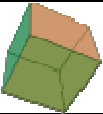





Icosahedron construction

From a clear working screen, select the n-gon symbol from the polygon drop down menu and enter 3 for the number of sides and select **OK**. Now tap the stylus on the screen. This will construct an equilateral triangle, $\triangle ABC$. Follow the repeated instructions in the examples above to create the net of the Icosahedron.



You can transfer these saved files to a computer, place them into a **Word** file, resize and print, then create the 3-D shapes by cutting out and folding.

Tetrahedron		Cube		Octahedron	
Dodecahedron		Icosahedron			

Note: You could also select the line segments and reflected these in a mirror line (**Select Axis**).

