

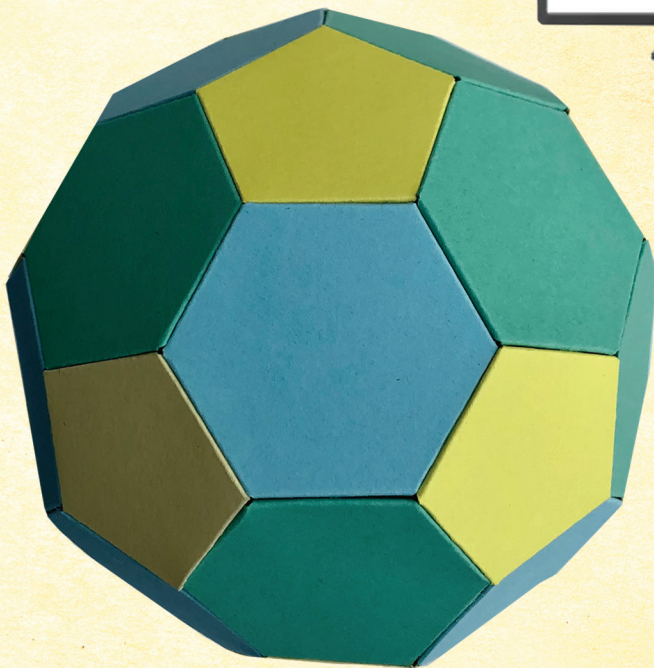
# Constructing the Archimedean solids

## Making up complex models with Mathomat: key steps

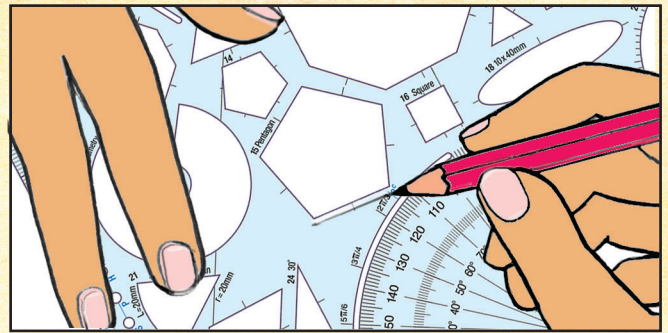
Max has chosen to make the **truncated icosahedron** model with **inside tabs**.

**1. Make a plan.** Max chose his shape from the website and colours the net he has printed from the website (this could also be drawn with Mathomat).

Hey, this Archimedean solid looks like a football. It is made up of pentagons and hexagons.



**2. Sizing the face templates.** Max draws the two shapes with Mathomat and decides on 30mm length sides. He scales up (see previous pages).

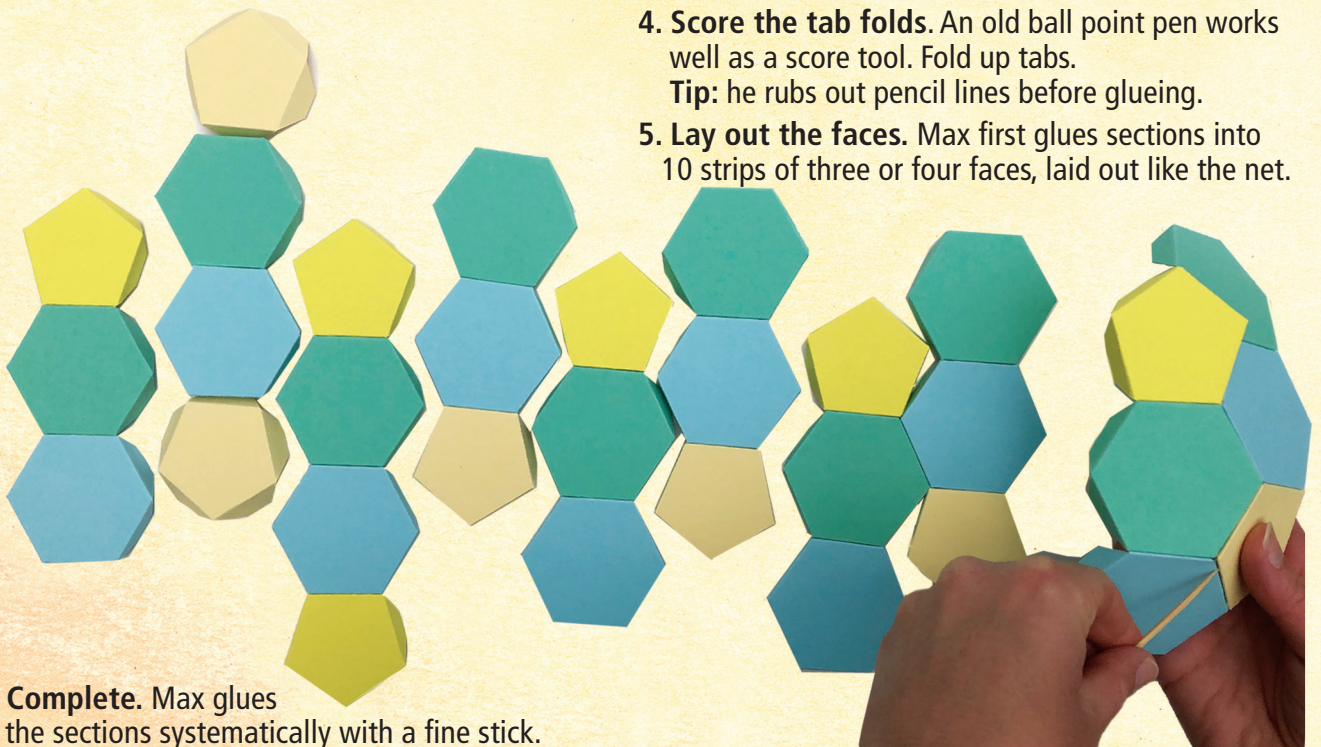


**3. Draw faces with tabs.** He draws round the face templates in Mathomat to make the faces. Straight tabs are added to each face side, before cutting out.

**4. Score the tab folds.** An old ball point pen works well as a score tool. Fold up tabs.

**Tip:** he rubs out pencil lines before glueing.

**5. Lay out the faces.** Max first glues sections into 10 strips of three or four faces, laid out like the net.

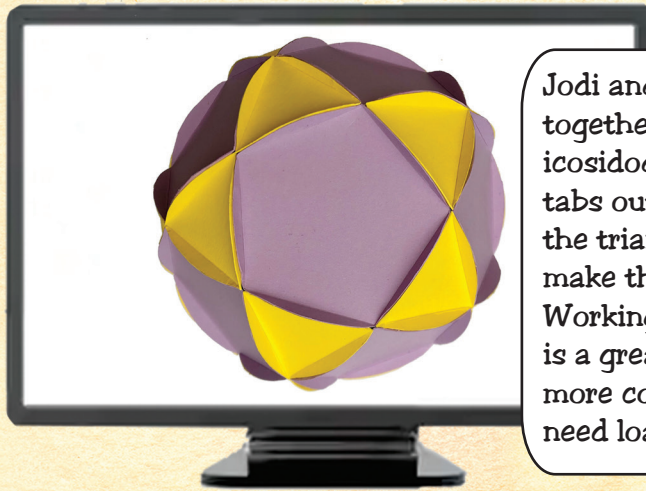


**6. Complete.** Max glues the sections systematically with a fine stick.

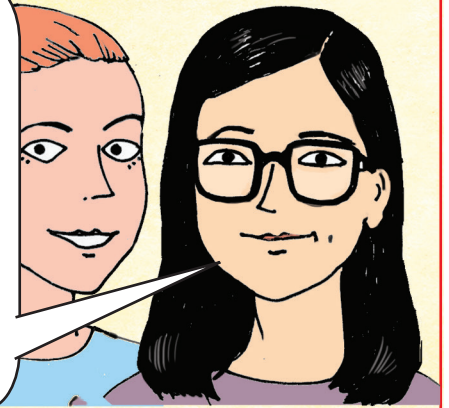
# with Mathomat III

Many of the Archimedean solids, have lots of faces. It's often best to work on them with others.

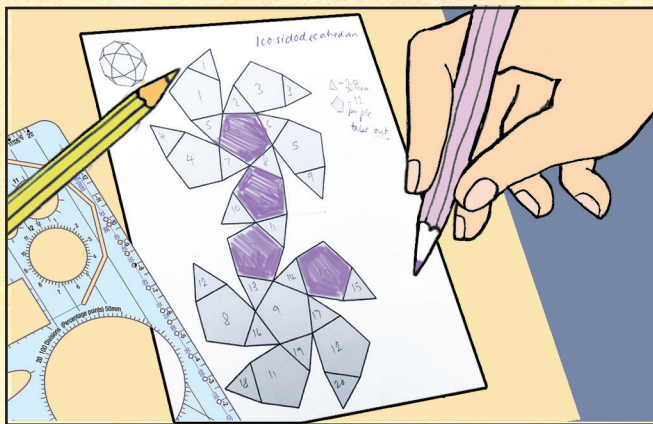
Carly and Jodie make the icosidodecahedron model with outside tabs.



Jodi and I are working together to make an icosidodecahedron, with tabs out. Jodie will make the triangles, and I will make the pentagons. Working in pairs or a group is a great way to tackle the more complex models that need loads of faces.

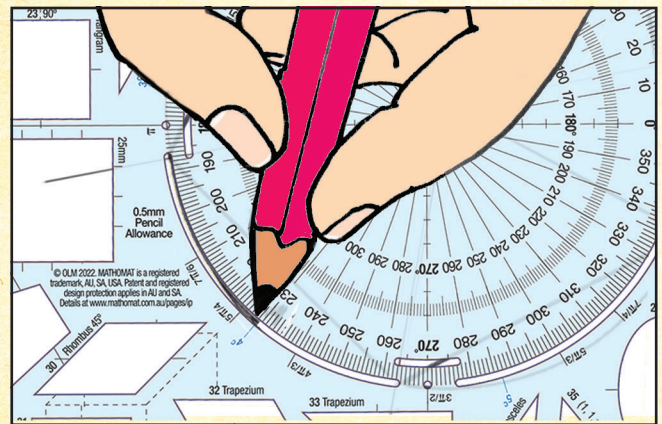


**1. Make a plan.** Carly colours the net she has drawn with Mathomat (using the website) and counts the number of shapes and faces needed.



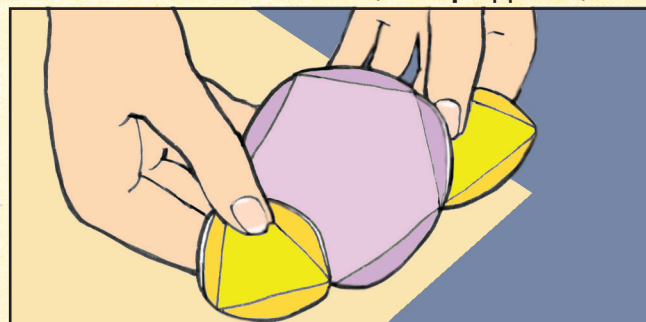
Use the many different card and colour combinations on the Mathomat website for ideas of your own.

**2. Sizing the face templates.** They scale up the two shapes, using the polygon expansion scale to make 50mm sides and make the face templates.



**3. Draw faces with tabs.** They draw round their templates to make the faces and then add **curved tabs** using the Mathomat protractor circle on each side, before cutting the faces out.

**4. Score and fold the tabs.** (See tip opposite)



**5. Lay out the faces and put sections together.** Placing the pieces to look like the net, Jodie and Carly start to glue sections of 3 pieces at a time.

**6. Complete.** Following on screen pictures and using a fine stick, they apply universal glue to the tabs as they add each section together to complete the model.

