

X3d Edit
Russian Bear TY-95

Philosophy – This model was created with a desire for accuracy in shape and size. Hence there is not a great deal of detail, however what is there was created as accurately as possible.

Development Process –

Step One – Research.

I conducted research on the web to find information on the bear. My principle site is called Russian Power found at <http://legion.wplus.net>. The pictures printed out from the sight in this binder have the specific URLs for the pictures on the printout.

Step Two – Tracing and Graphing.

I took the line drawings I found and traced them on to graph paper. From the line drawings I established a guide that 1 block on the graph paper equals 2.6 meters. The new traced line drawing became the reference for the size and shapes of all the pieces I created. All elements of the plane were created using the generated real world measurements (meters).

During step three (coding) I decided to create the wings by using an actual wing shape as an extrusion cross-section. Even though it occurred at a later time, I mention it here because I used the same tracing method. I found a web site <http://acam.ednet.ns.ca/curriculum/wing.htm> that showed different wing designs and found one used for bombers. I then traced that shape onto graph paper and used it as the basis for the cross-section.

Step Three – Coding.

The first piece I created was the fuselage. The fuselage is an extrusion in the shape of a cylinder. The cylinder tapers in and up as it goes back towards the tail. Because extrusions taper uniformly the spine had to be adjusted to go up to maintain the appearance of a straight flat top.

Next I made the wings. The wings are an extrusion using the above mentioned wing shape as the cross-section. There are three points on the extrusion – the wing tips and the center of the fuselage. The edges of the wings have a parallel line to the fuselage so the wing tip cross-sections had to be rotated to come parallel with the fuselage.

Next I made the tail. The tail is an extrusion with the spine going up the Y axis. The cross-section is a basic tail shape with a thin front edge in the front opening up to a thicker rear. This shape is then scaled to come toward the back and in to give it it's shape. Once again the spine had to be adjusted to compensate for uniform scaling. This gives the tail the straight line going up the back.

The next portion I created was the nose. I used half circle points as the cross sections for extrusion to create the glass (blue) elements. The nose is an extrusion which began with a circle cross-section. I changed the values on the top part of the circle to give it the smushed look which was then scaled to the point for the nose.

Lastly, I created the props. I began with one prop. It was an extrusion using a prop shaped cross section which was also drawn on graph paper to obtain points. The extrusion had three closely placed spine points which where rotated slightly to give the off-set look of the propellers. The first propeller was reused and rotated to create the entire engine with 4 propellers. I then grouped the pieces and reused them on each engine pod. For the smaller props I just rescaled the extrusion data to make a smaller prop and reused each piece just like the large propeller. Where possible I used groups to facilitate reproduction but I should have planned out the process better. Some copies generated extra code that could have been omitted with a better plan.