# 3D Character Design/3D Modeling

The Mecha is the perfect project for incorporating the eight basic modeling skills. Its many parts and sub-parts allow full use of box models, lathes, primitives, extrusions and more.

Your mecha will have all the structures of a typical bipedal vertebrate: Arms and legs that articulate with joints (knees and elbows - wrists and ankles). It will have a torso & pelvis (the unit that connects the legs and the upper body together: Hands with fingers that bend and a head with a distinctive, menacing quality. Remember, details will make this character interesting!

Your mecha can be constructed using several techniques. Primitives and Extended Primitives are useful.
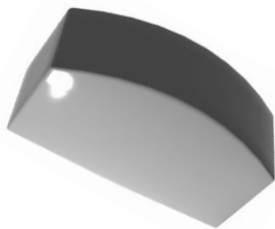
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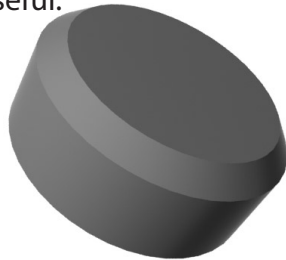
Sphere with hemisphere setting and squashed using the scale transform tool.

Chamfered Cylinder

Other parts of the Mecha might require more complex modeling such using Booleans, FFD's and/or Box Modeling

A chamfered box with a 3x3x3 FFD applied to round off the surface.

Extruding splines and applying an Edit Poly modifier is another technique for creating unique shapes

1. Rectangle with a radius setting.
2. Extruded using the Extrude modifier.
3. An Edit Poly modifier added to Bevel the top surface.
4. Outer Edges selected, connected and then chamfered to created the rounded sides.

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The Mecha Project - Basic Stances

The"Mecha" or "Gundum" project is meant to teach you the full use of the eight
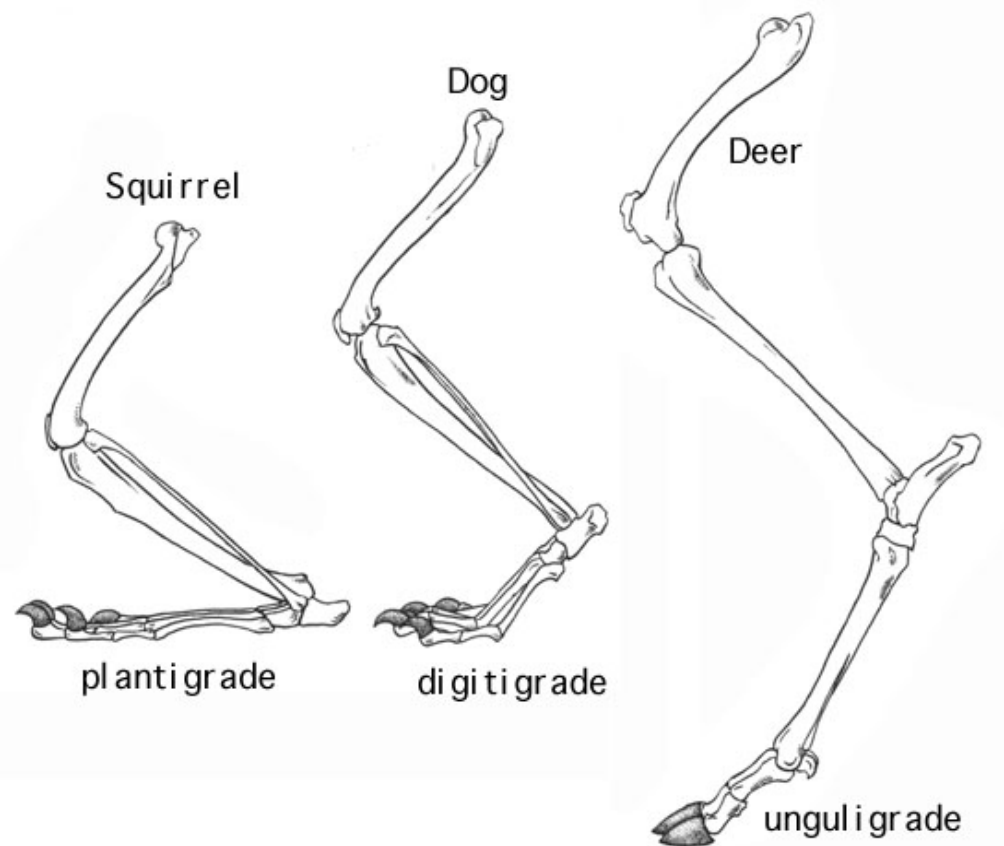basic modeling techniques and integrate them in one project.

The parts of the Mecha mimic the parts of the human skeleton and for that matter most vertebrates.

This is called "The Basic Vertebral Structure". You use it in designing and modeling
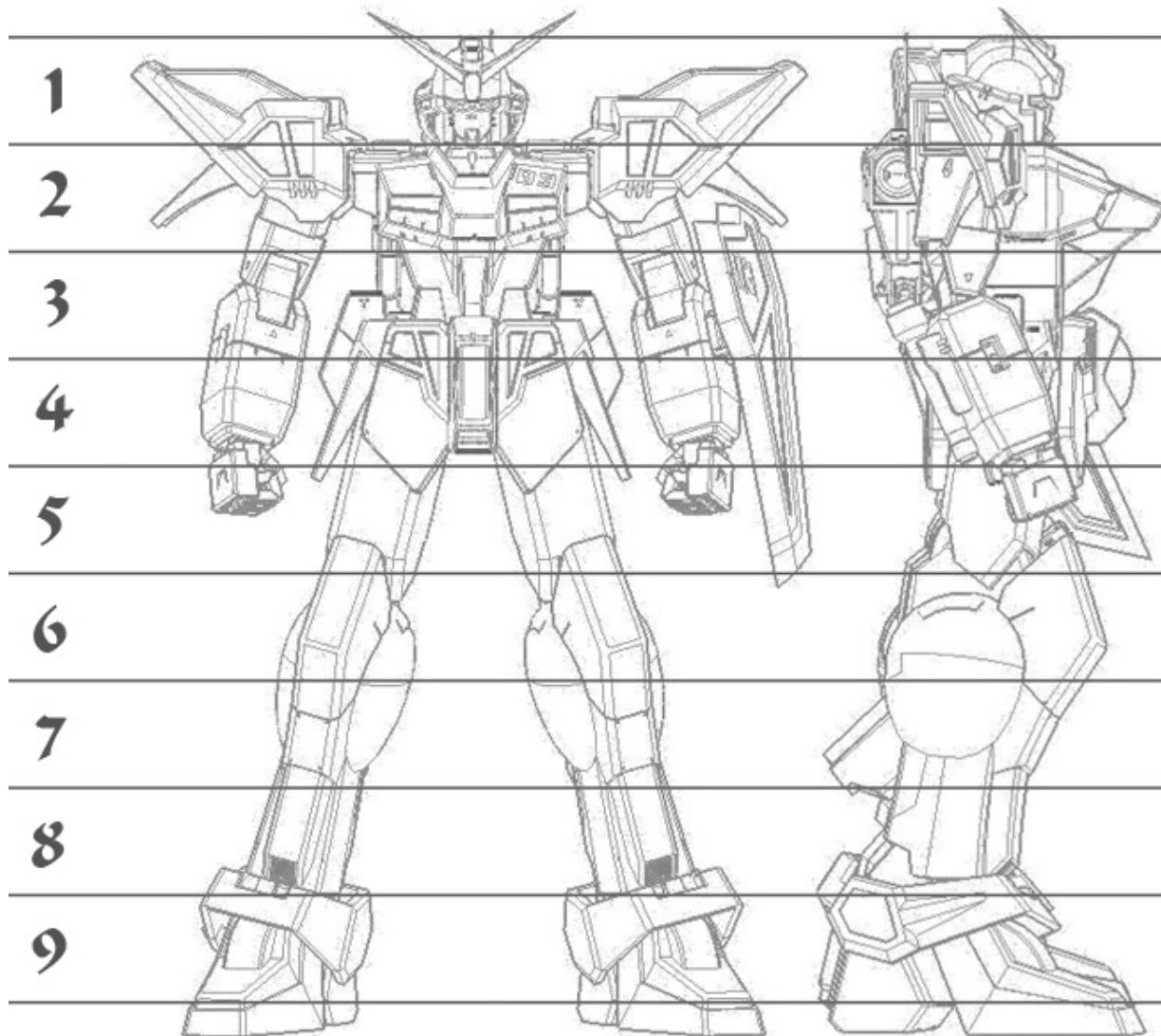almost all characters that have a backbone.

The stance of your mecha will be one of the three basic rear legged, standing, stances they are:

1. Plantigrade - Humans, Bears, Squirrels...
2. Digitigrade - Wolves, Leopards....
3. Unguligrade - Horses, Elk....

The bones types of all these creatures
are the same. Nature has merely arranged
them in different patterns allowing for
different survival skills.

Squirrel

Dog

Deer

plantigrade

digitigrade

unguligrade

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Typical Proportions of Gundam Mecha

The proportions of the Mecha are critical. By proportion we mean the sizes of the different parts to one and another.

For example, if we divide the entire Mecha into 9 equal parts, we see that unlike a human being, the Mecha is very different, proportionally-wise.

The head is much smaller in relation to it's body. The waste is much higher than that of a human. Its' legs and feet are massive.

The entire structure is meant to intimidate. It's as if you are standing close to giant and as you look up perspective makes things look smaller.

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Procedures and Methods

The Mecha is constructed in modules (upper leg module, lower leg module, chest module, head module, etc.). You will use box modeling, primitives and any other of the eight techniques to create the modules.

Make use of the "Mirror" tool for constructing symmetrical modules - feet, legs, hands and arms.

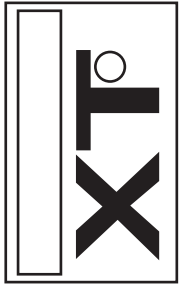The modules must connect in some manner, they should have some hinge design. See samples of various I

Front View
Back View

Basic Modules for a Plantigrade Mecha

Hinge/Joint Systems

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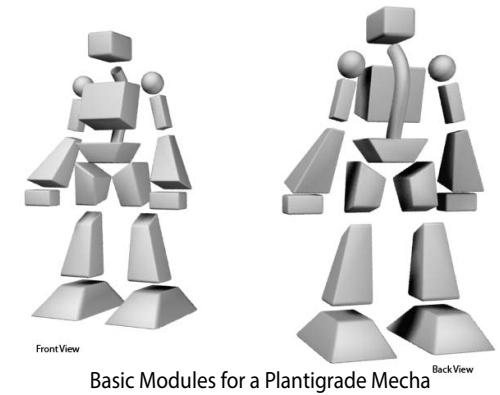
Other Techniques

Creating the illusion of lines, bumps and other surface qualities
in 3d modeling is often called "Normal" mapping

1. This logo design was made in Adobe Illustrator and
imported into PhotoShop.

In PhotoShop, the color mode was set to RGB.

Then under "Filters", the NVidia" plug in was
used to create the image to the right.

3. The result when rendered is of
an embossed pattern.
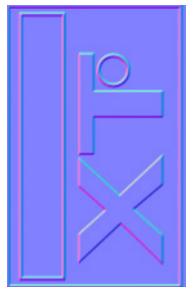
2. This image was imported to 3DMax
and placed in the "Bump" slot in the
"Material Editor" and applied to the
box form on the right.

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