

BRYCE 6 Mini Tutorial

How to make CEL Shading

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HTML Version
by Horo

Crimson Sadness (Eugene Babiak) >



Introduction

Cartoon drawings are superficially simple: an object or a character is defined by its outline and parts within that outline are differently coloured. The colours used are flat without nuance.



Sometimes, colours are done without and shading is done using parallel lines or crosshatched, sometimes even with small fine dots from an airbrush. What appears to be simple at first glance is also a form of art: reduction to the essential.

This kind of drawing and colouration that are typical for cartoons is called CEL shading or Toon shading. CEL stands for Contour Enhancing Lines. *Toon* is, of course, the abbreviation of *Cartoon*.

It could be definitely charming to create cartoons in Bryce for a change. Using the appropriate materials, this is a relatively simple task. Even though this is declared as a Bryce 6 tutorial, the method shown here works without limitations for Bryce 5.0; probably even for Bryce 4.

Material suitable for CEL

The CEL effect is created by the material used. Three parameters are important: Specular Halo, Specularity and Metallicity. Specularity makes the material appear glossy and Metallicity transfers the diffuse colour to the object. Never mind how the other parameters are set, the ones marked with a red arrow must be set as shown. If transferring the diffuse colour to the object is not desired, Metallicity can be set differently.



There may be textures in the material channels even though there are none in the example above. Usually, you would do without Bump, this parameter can be used for special effects, though.



The picture above shows why it is mandatory to set Specular Halo to full white; and below, the effect of Bump is obvious.



Sandy bump texture



No bump

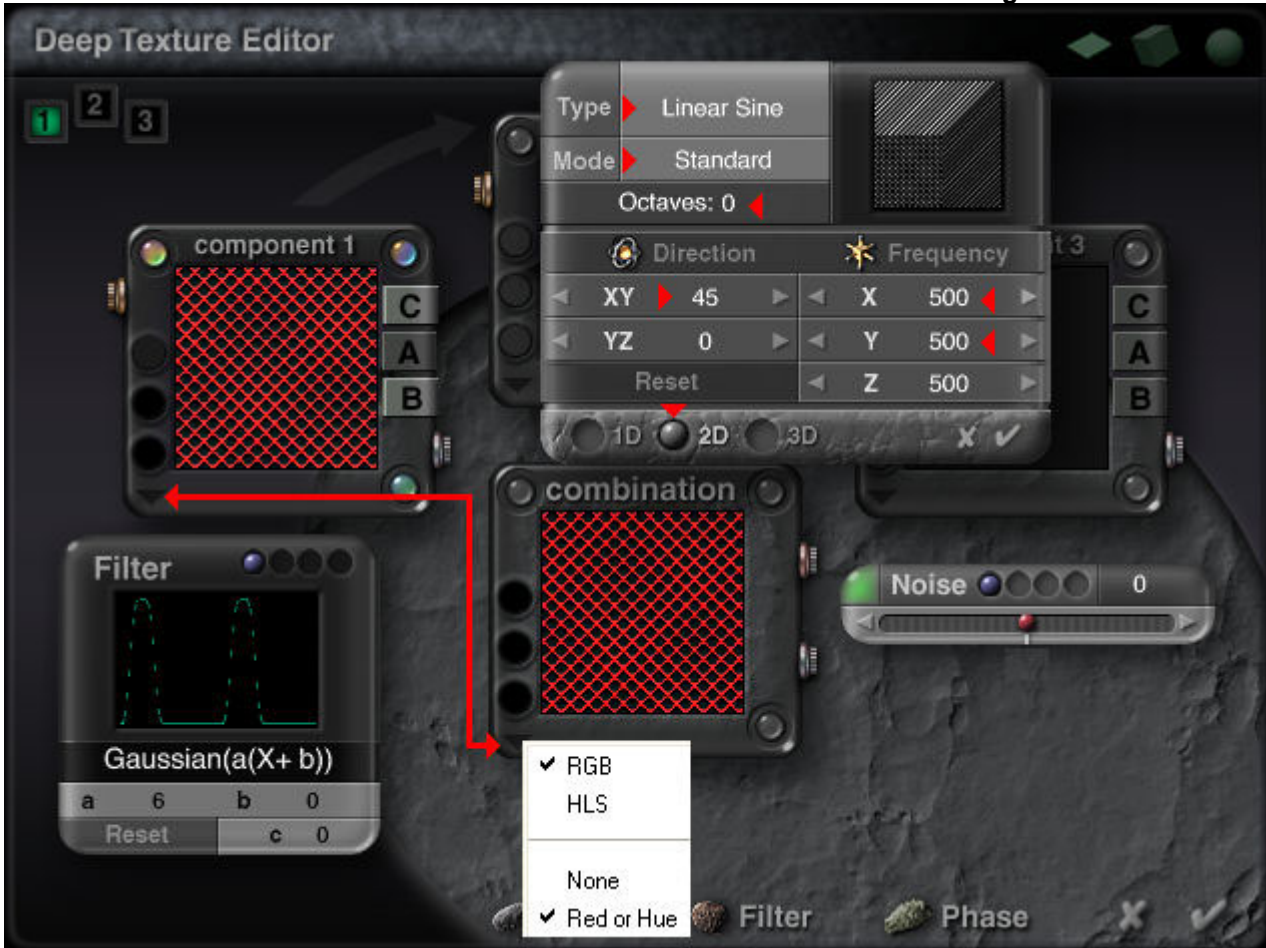
You will want to introduce some Bump if you wish to get a drawing effect like hatching or airbrush. The lady is Victoria from DAZ3D. Here, Victoria meets her toon double.



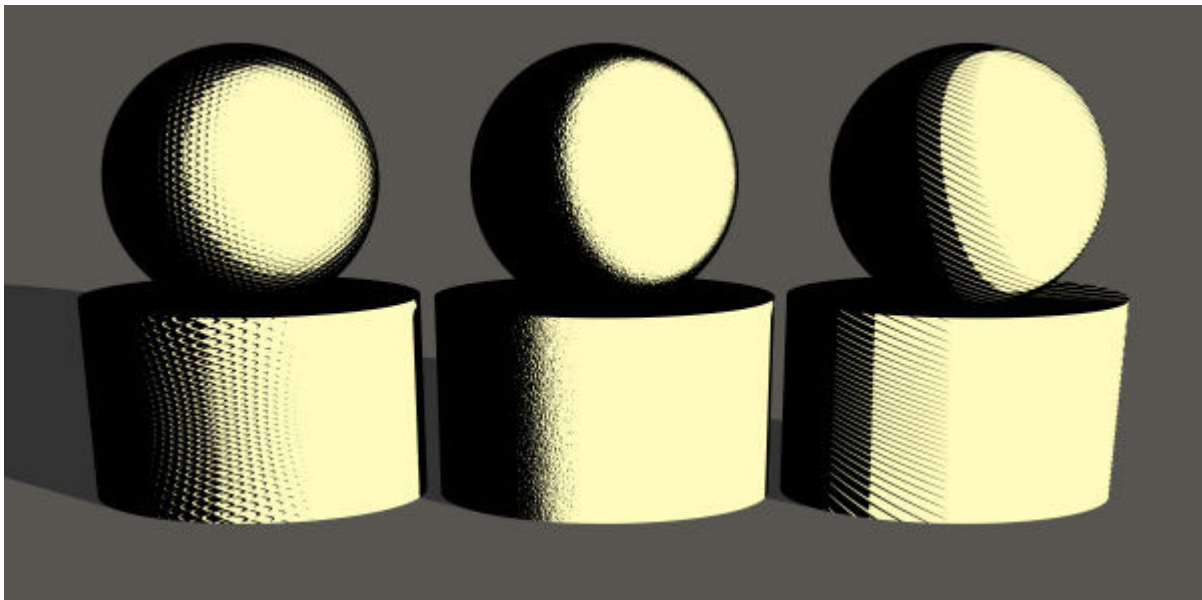
The ladies are clones. The right one is the original out of DAZ Studio, the left one a copy, rotated by 180°. For the left madam, all original materials were retained, only the three important parameters Specular Halo, Specularity and Metallicity were changed and Bump was set to 0.

Hatching

Hatchings can be very charming, as shown by Eugene's *Crimson Sadness* above. Such hatchings can be made relatively easily in the Deep Texture Editor (DTE).



The picture shows the approximate settings for a crosshatched texture. If unidirectional lines are desired, select 1D instead of 2D. The angle is adjustable. If the Octaves are increased, the hatching gets coarser; the fineness is adjusted with the Frequency.



On the left side, crosshatching with 500 Hz and 100% size. At right, the same hatching but only 1 dimensional. For the example in the centre, a fine sandy texture was used. Rendered premium with 256 rays per pixel.

Illumination

Lighting is simpler than for realistic scenes. A radial or the sun suffices already, though you might want to add one or a few radials to brighten up too dark shadows, because the Shadow Intensity in the Sky Lab must be set to 100%. Light-rings, light-domes or IBL do not appear to be a very sensible choice — or necessary — for this kind of pictures.

If realistic scenes are mixed with cartoon content like above with the two ladies, adjusting the light gets trickier because the realistic content usually needs a lot of light and the toon object easily gets too bright. In such a case, you would adjust the main light for the toon content and then add a couple of faint radials to give the realistic object enough light.

Example

The example below shows that a «realistic» scene can be converted to a toon scene with relative ease. Only the materials were changed.



In both cases, the scene is lit by a yellowish sun with a supporting radial without falloff very far away. At the opposite side of the sun, there is another radial, weaker and without shadow casting enabled, to brighten up the dark shadows. The sky is a photograph on a 2D face.