

Asteroid Maker

Two plugins for Cinema 4D

Introduction

This plugin is actually two plugins - an object generator and a shader. Together they can be used to create objects with the desired shape and texture for an asteroid or small moon. You can also use the object generator alone to create rocks other than asteroids, but then you will need to supply textures for it yourself.

The Asteroid Generator

This generator uses another object for input, then subdivides and distorts it to give the desired shape. It uses various noises to distort the object, so in some ways this is like the Cinema 4D Displace deformer - but is more powerful and flexible. Subdivision is built-in to the generator, so you don't have to do that separately, and multiple layers of noise can be applied to the object.

Using the generator

Add the Asteroid Maker plugin to the scene, then add an object as a child of the generator to act as an input for it. You can use any editable polygon object, or a primitive object (it must have a mesh, the generator won't do anything to splines) or other generators such as Extrude. Generally speaking, it works best with a simple primitive object. A Cube or a Platonic are the best choices - in fact, a Cube works better than a Sphere.

Important: the generator will use the first object only, which must be a polygon object (or which would be if it were made editable, such as a primitive object, Extrude, etc.). It will not use any other child objects of the generator. But it will honour object hierarchies if multiple objects are made child objects of a Null object which is itself the first child of the generator, as long as those child objects are polygon objects (or primitive). Here are three object hierarchies:

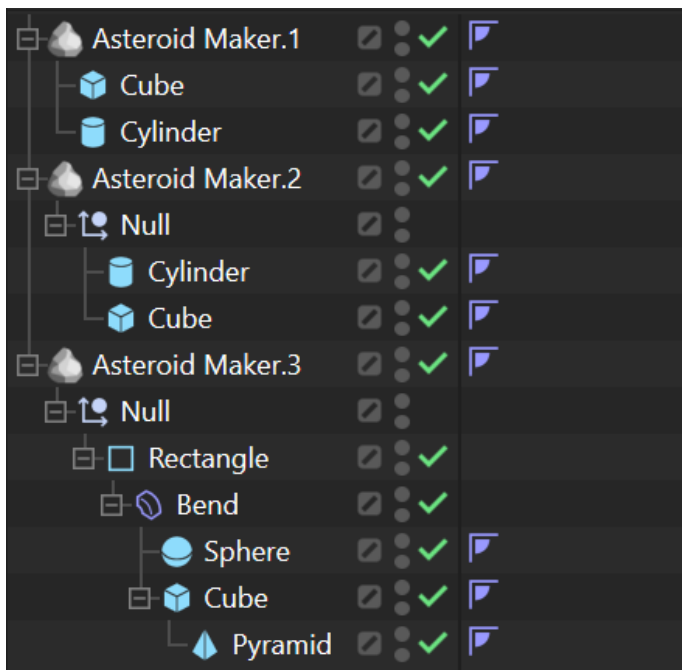


Figure 1. Object hierarchies

In 'Asteroid Maker.1' only the Cube would be deformed. But in 'Asteroid maker.2' both the Cube and Cylinder would be deformed since both are child objects of the Null object. Finally, in the strange hierarchy that is shown in 'Asteroid Maker.3' all the primitive polygon objects would be deformed; the Rectangle spline would be ignored. The Bend deformer, incidentally, since it is a child object of the Asteroid Maker, would work as

expected. However, if the Bend deformer was the first child object of the Asteroid Maker, the primitive objects would not be used as input objects by the generator. Only a Null object can hold child objects which will be used by the generator.

So that's all perfectly clear. Probably. If not, some experimentation will soon resolve it.

That's basically it when it comes to using the generator. What you end up with is an object with a shape that hopefully gives the kind of rock you want. But it won't look much like a rock without a texture, which at the very least will require a bump map and preferably displacement in the material. For asteroids and space rocks, you can use the Asteroid shader but for other rocks the texture is for you to add.

Reference

In this section the various parameters are explained in detail. First, there are some options applicable to the object as a whole, then there are sets of parameters for each added noise layer.

General options

1. Subdivisions

This is a really important setting. Remember that what this object does is deform the input object by moving its vertices. So if you want more detail, you're going to need a lot of vertices. The problem is, the more vertices (and polygons) you generate, and if you then add a material with sub-polygon displacement onto it, render times can really go up. As an example, a Cube primitive has eight vertices in its default state. The Asteroid generator will take that and by default subdivide it four times, giving 1,538 vertices. With six subdivisions, that becomes 24,578 vertices. If the Asteroid shader using displacement is applied to the object, then render times on my system look like this:

Asteroid Maker subdivisions	Displacement subdivision level	Render time (seconds)
4	4	<1
5	4	1
6	4	3
4	5	<1
5	5	3
6	5	9
4	6	2
5	6	13
6	6	47

As you can see, what really makes the difference is increasing the number of subdivisions in the generator to six or higher. The default setting is four subdivisions; sometimes this is a little low if you want a lot of detail, then five subdivisions is usually enough. If you go higher, keep the displacement subdivisions low to avoid really extended render times. Remember also that a cube has eight vertices before subdivision, whereas a sphere has 482 by default, so using a sphere with the default number of subdivisions (four) will generate a colossal 122,882 vertices compared to 1,538 for the cube! For this reason, if using a sphere you might want to reduce the number of subdivisions to 2 or even 1.

2. Smooth Subdivision

This is a setting for the subdivision algorithm Cinema uses. It's easier to demonstrate than explain. Here is a cube with the normal number of segments and five subdivisions in the Asteroid Maker. On the left, smooth subdivision is off; on the right, it is on.

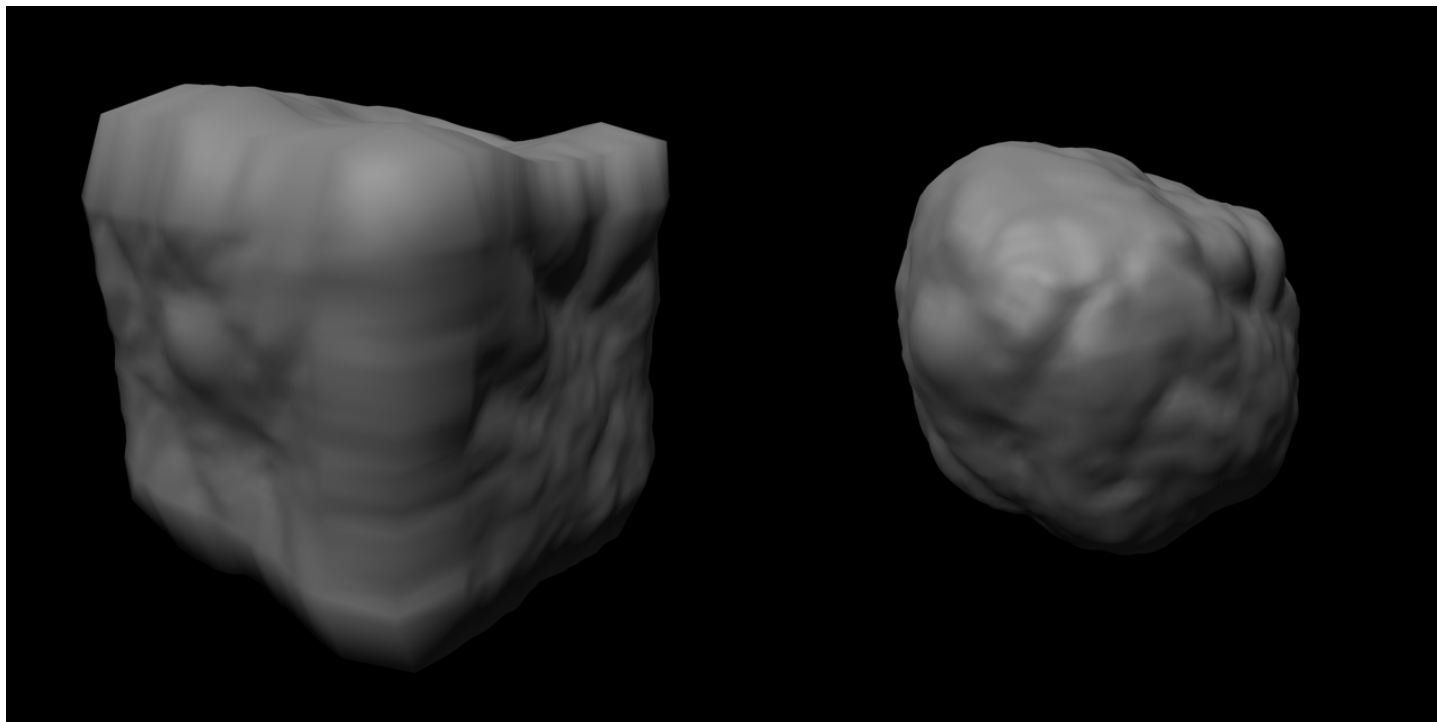


Figure 2. Smooth Subdivision off (left) vs. on (right)

Which option you choose is purely a matter for you. You might be wondering how to turn on smooth subdivision yet still get a general cube shape for your rock rather than a generally spherical shape. This is explained in more detail later.

Note: if smooth subdivision is on, the subdivision effect is identical to what you would get if you added a Cube to the Subdivision Surface object with the same number of subdivisions and the same algorithm (e.g. Catmull-Clark).

3. Subdivision Pattern

These are the same as the choices you see in the Subdivision Surface object. The default is 'Loop' since that seems to produce the best effect for this purpose but you can use the others instead if they work better for you.

4. Smoothing

Sometimes, the distortion caused by the noise may result in spiky areas, sharp edges, and even mesh breaks. If this happens, you can use this setting to remove the effect. The higher this value, the more smoothing takes place, but inevitably the smoothing will also remove some detail.

Usually 100% smoothing is sufficient but it can go higher if required; the slider will go up to 250% and the numeric controls have no maximum setting.

5. Seed Value

This is the seed used for the noise distortion. You can change this to vary the distortion which occurs.

6. Normalize Scales

With this switch turned on, which is the default setting, if the generator or input object are scaled, the distortion effect of the noise is scaled with it. In these images, the input object is a Cube made editable and the noise is Ridged Multifractal. On the left, the object has its default scale and size; on the right, the input cube has been scaled up by a factor of 2. You can see that the noise pattern is preserved although it does start to look a little 'softer'; it may be necessary to increase the number of subdivisions to rectify this.

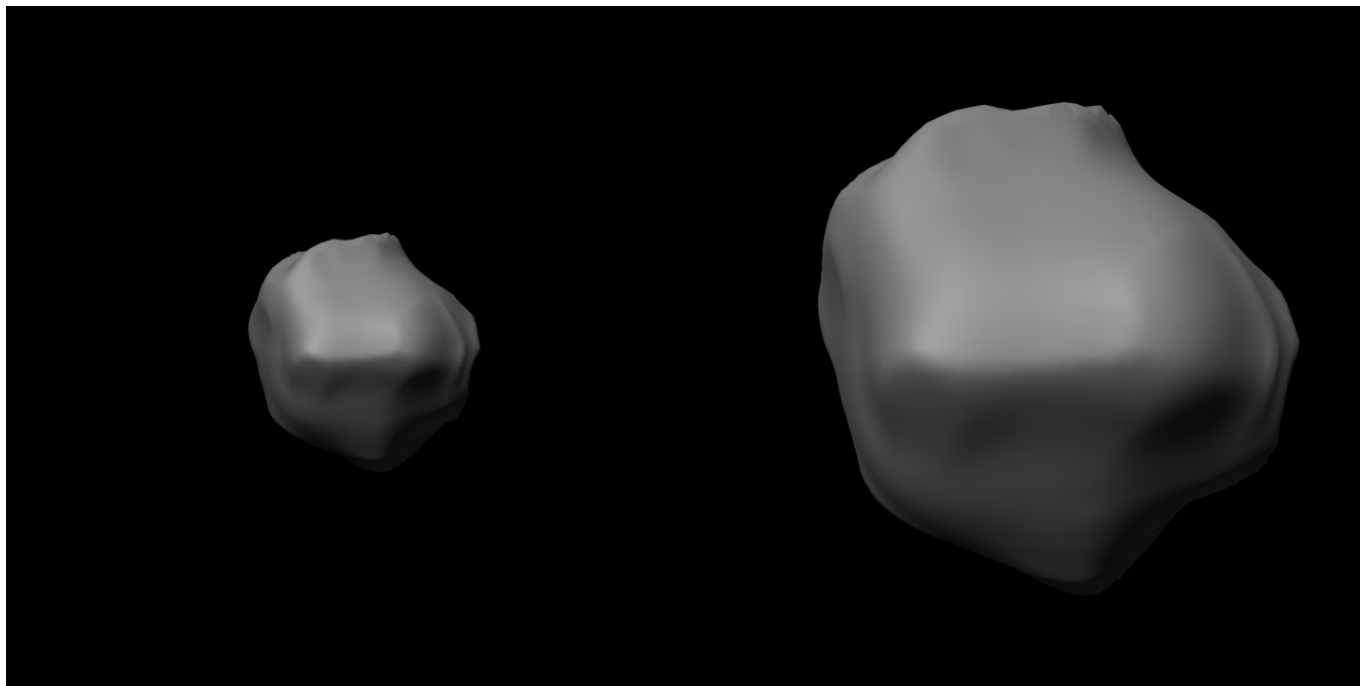


Figure 3. A cube with scale of 1 (all axes) on the left, scale of 2 (all axes) on the right

This is normally what you would want. However, sometimes this is undesirable. For example, suppose the object on the left in Figure 4 was scaled only on the X axis. Then we see the result on the right:

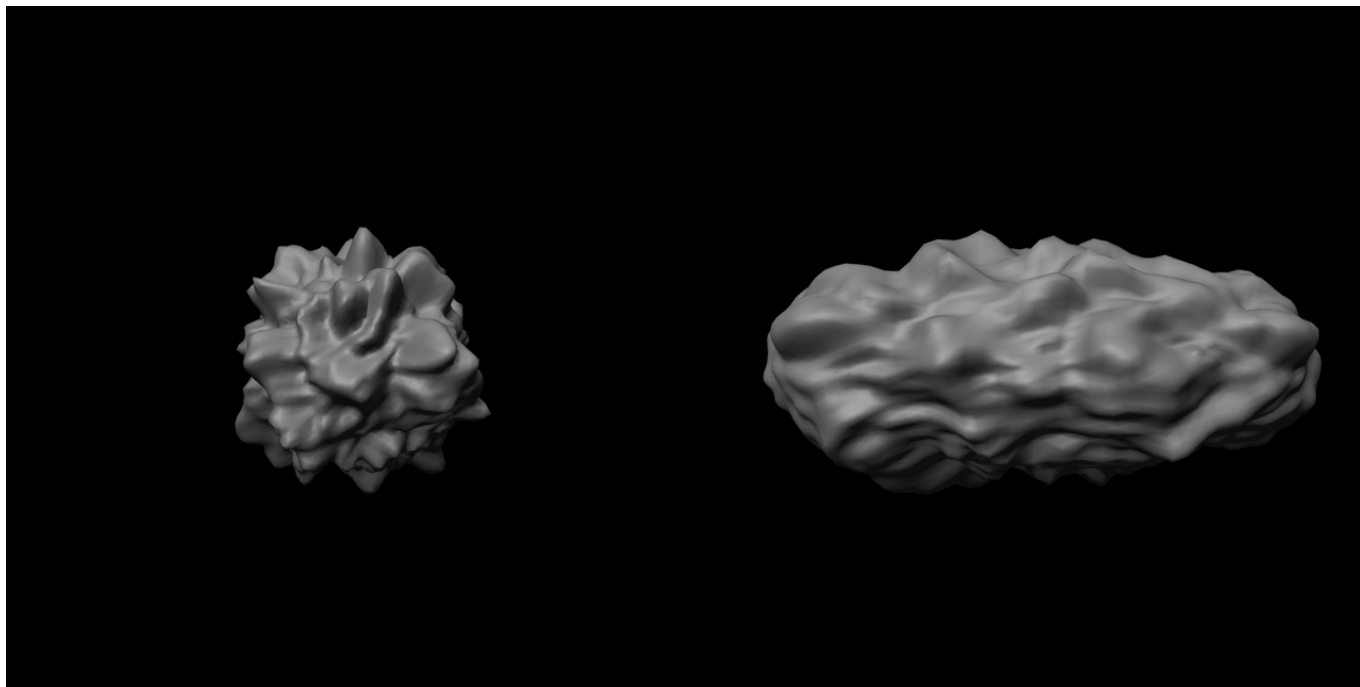


Figure 4. Unscaled object on the left, scaled only on the X-axis on the right

Now the noise has been scaled too but it looks stretched and not necessarily what was intended. The way to fix this is to turn this switch off. The generated noise pattern will look slightly different but when the cube is scaled along X the result is shown in Figure 5.

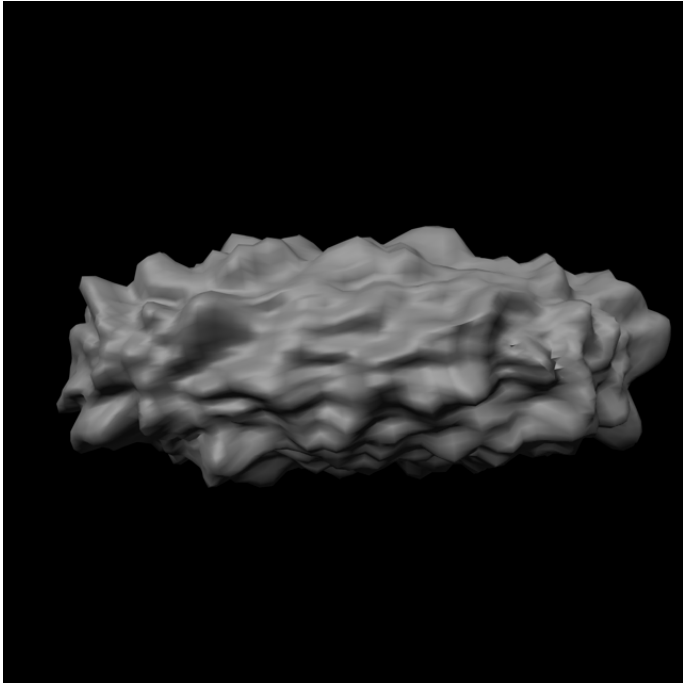


Figure 5. Same object as Figure 4, but with 'Normalize Scales' turned off

Now instead of stretching the noise effect, you simply see more of the noise as the object is scaled up.

The second use of this switch is shown in Figure 6. In the left image there is a Cylinder with all default settings and the noise is the default Noise. The image on the right is the same but with the Cylinder height reduced to 30 scene units. Notice how the noise seems 'pinched' in the centre of the cylinder cap, and seems to have a radial distribution. You see this most of all with Plane or Disc objects, where it is very noticeable.

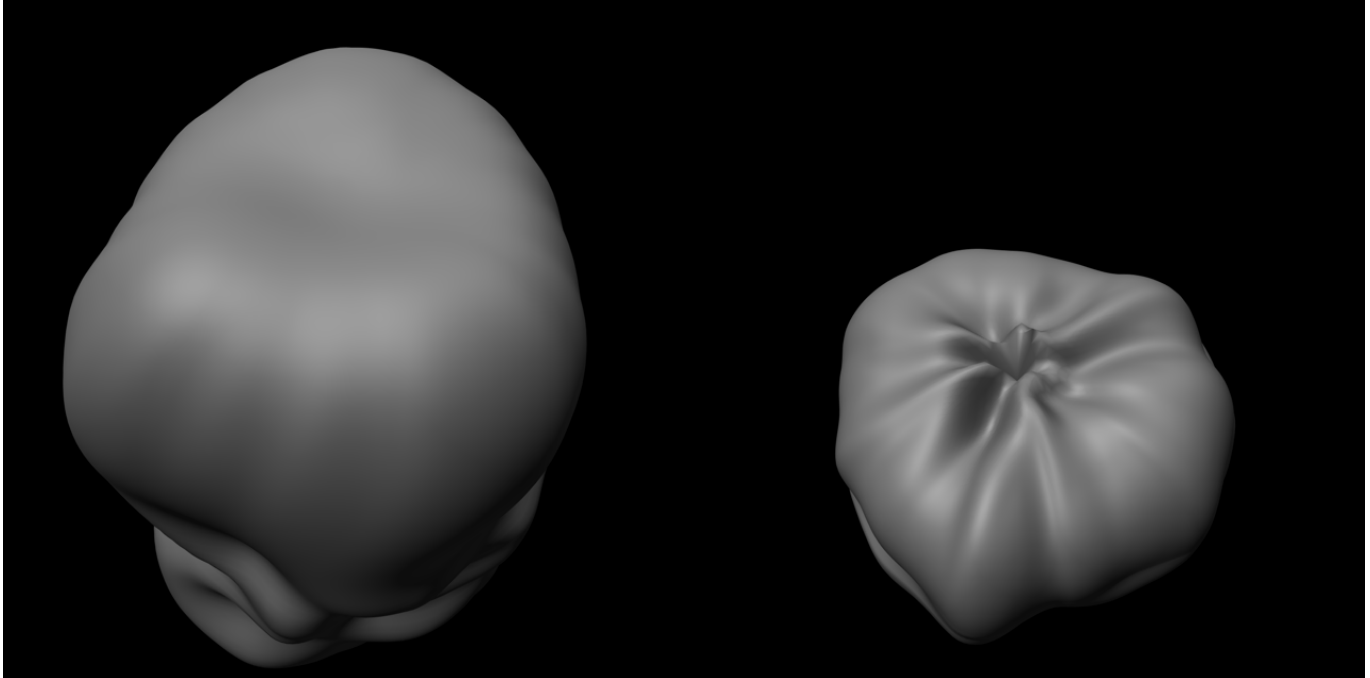


Figure 6. Cylinder with pinched distortion on cap

The solution is again to turn off the normalizing of scale values. Then the pinching effect disappears.

7. About... button

Click this button to show the version and other information about this plugin.

8. Open Manual button

This button will open the manual for the plugin. For this to work, the manual must be located in the same folder as the plugin itself (the file with the .xdl64 or .xlib extension).

Noise Layers

The distortion takes place due to the effect of one or more noises which are used to move the object's vertices. There must always be one layer, and this cannot be removed, although you can remove its effect either by turning off the 'Use Layer' switch or by setting the 'Strength' value to zero.

To add a layer, click the 'Add Layer' button. When you have two or more layers, the 'Remove Layer' buttons is enabled; click this to remove the last layer in the list. The various layer settings are as follows.

1. Use Layer

Turn this switch off to remove the effect of this layer completely without removing the layer itself.

2. Noise Type

These are the familiar noise types from the Cinema 4D Noise shader, plus two others, Ridged Multifractal and Simple Noise. The Simple Noise is present to give essentially random detail to the surface. The standard noises do include a 'Random' noise, but this isn't at all useful here because it does not respond to the scale settings. Simple Noise does respect the scale values. The default setting is 'Electric'.

3. Mode

For each layer, the value returned from the noise can either be added to or subtracted from the previous noise effect. This can markedly change the result of the distortion. The default is to add the value but this can be changed for each layer individually. See the result here of adding or subtracting a simple noise value from the top layer. The base layer uses fBm noise, the top layer Electric noise:

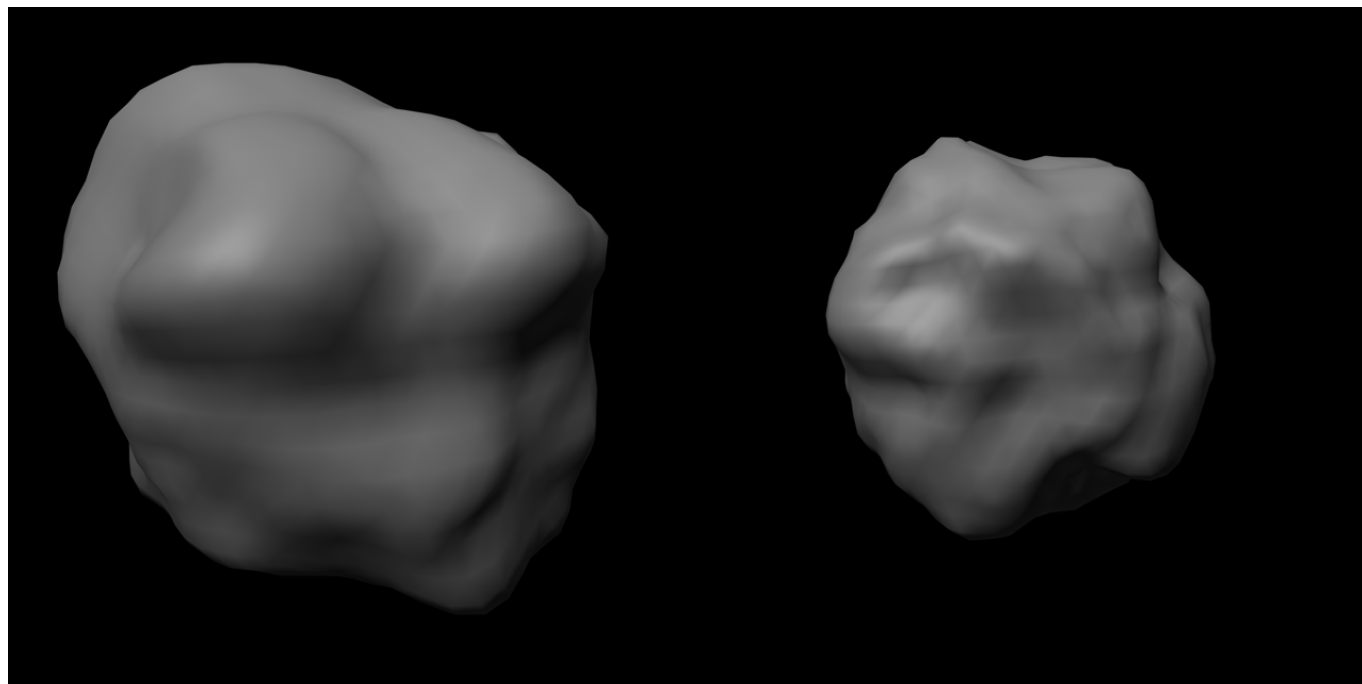


Figure 7. Two layers, the top one added to the base (left image) or subtracted from the base (right image)

4. Strength

The strength of the noise. This value is multiplied with the value returned from the noise, so if it is zero the layer will have no effect. The default is 100% but you can go above this if required. This image shows the simple noise effect at different strengths:

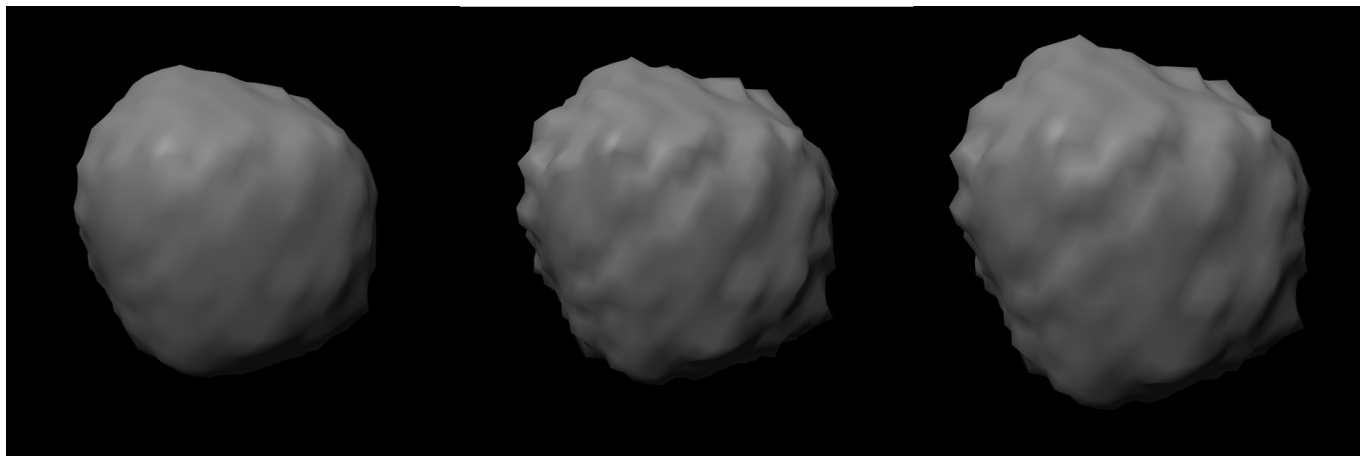


Figure 8. Simple Noise at 50%, 100% and 150% strength from left to right

5. Overall Scale

The scale of the noise. Decreasing this will result in finer details while increasing it will cause less detail. See the difference here of a simple noise at different overall scale values:

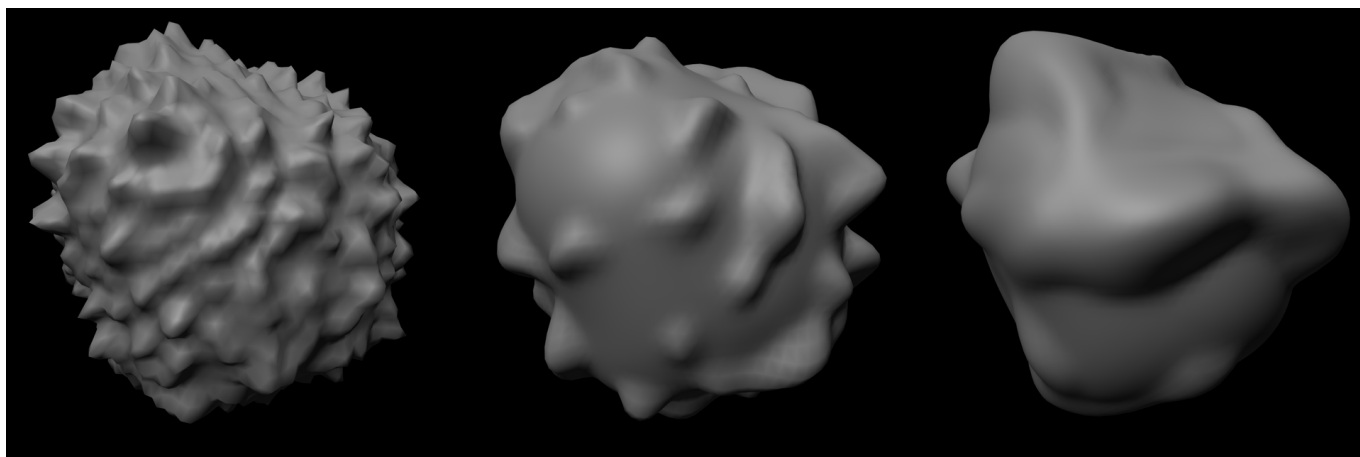


Figure 9. Simple Noise 10%, 30% and 50% overall scale values from left to right

Note that if you reduce the scale to get finer detail, you may not see much effect without also increasing the number of subdivisions in the main options. These images show a simple noise at an overall scale of 5% with 4, 5, and 6 subdivisions respectively, with all other settings the same:

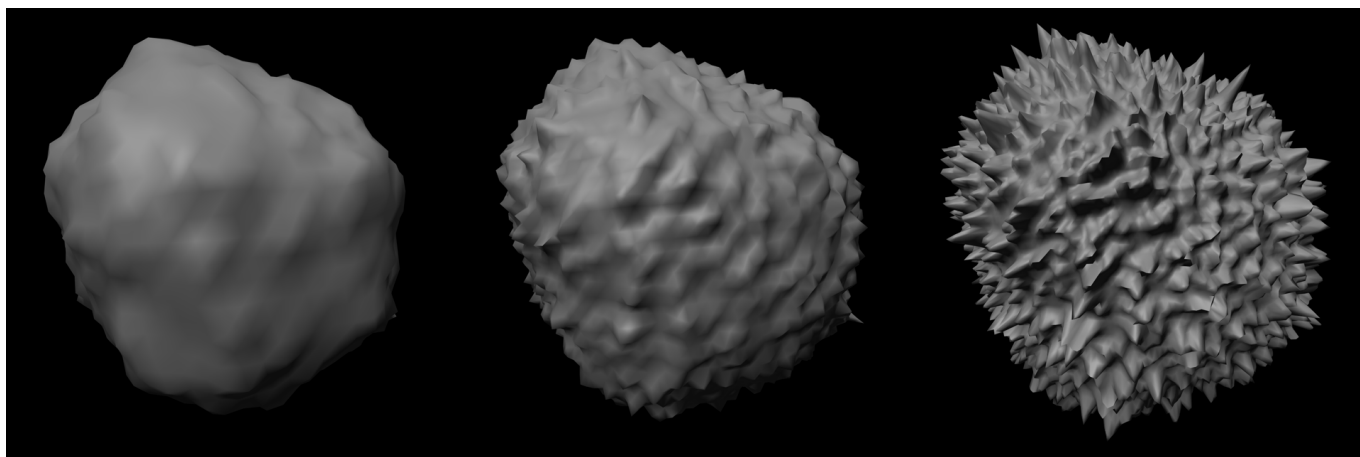


Figure 10. Simple Noise, strength 5%, at 4, 5 and 6 Subdivisions from left to right

No other settings are changed. It is important to remember that the generator moves the vertices of the objects, so the more vertices there are in the same object, the more detailed it can be. In Figure 10, the optimum setting looks to be 5 subdivisions.

7. Flatten

The effect of increasing the Flatten value is to reduce the distortion effect by setting areas of low distortion to lower values or even to zero. A value of 100% will remove all distortion from that layer. For example, here is a simple noise effect on Flatten settings of 0%, 30% and 60%:

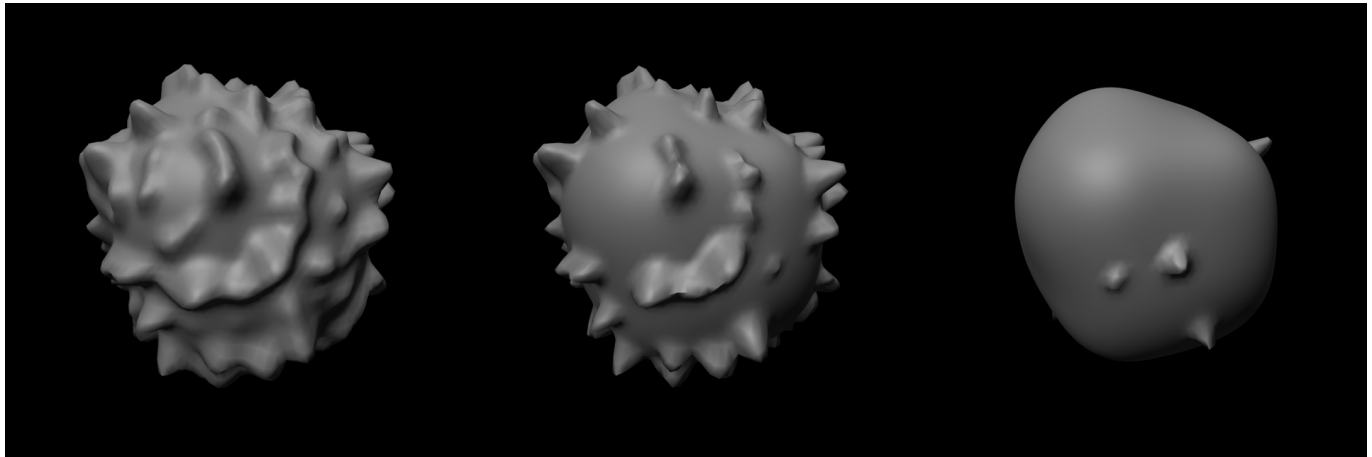


Figure 11. Simple Noise with Flatten value of 0%, 30% and 60%, left to right

As you can see, increasing the flattening amount removes more and more detail until only the largest distortion values are left.

8. Elevate

Elevate has the opposite effect to Flatten. Increasing it increases the distortion effect for areas of already high distortion. This makes distorted vertices even more distorted and those which previously had little distortion become distorted. This image is simple noise again, this time with Elevate values of 45%, 70% and 100%:

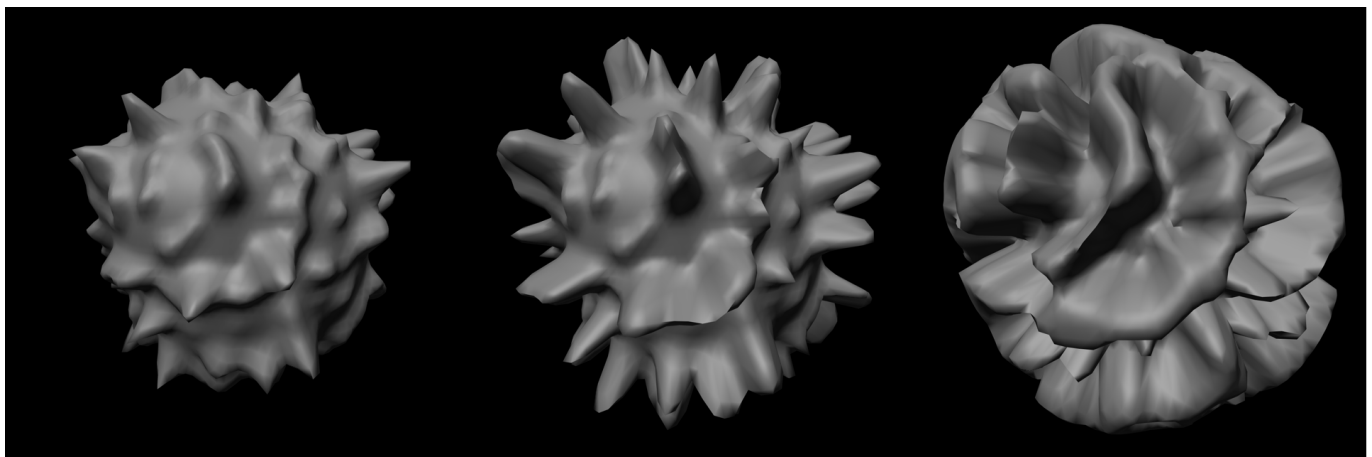


Figure 12. Same object as Figure 11 but with Elevate values of 45%, 70% and 100%, left to right

Important: you can use both Flatten and Elevate in the same layer. However, the two values are linked. What happens if you set both to 100%? Vertices cannot be flattened and elevated at the same time. For this reason, Flatten takes precedence. The combined effect has a maximum of 100%, so if Flatten is set to (for example) 40%, Elevate will have increasing effect until its value reaches 60% (because $40\% + 60\% = 100\%$ and the combined effect can be a maximum of 100%). After that increasing Elevate would have no effect.

9. Absolute Values

Some noises return values between 0 and 1, while others return values between -1 and 1. If this switch is on, the value returned is always in the range 0 to 1. That is to say, if the actual value returned is negative, the absolute value is always positive value.

This makes a real difference because a negative value from a noise will move a vertex in the opposite direction to the equivalent positive value.

The switch is not available for those noises which do not support it.

10. Use Fields

This generator supports the use of Field objects. Fields are added to the Asteroid Maker's Fields tab in the usual way. If this switch is turned on, the distortion will only take place within the area of effect of the Field. This screenshot shows a Linear Field restricting the distortion to only part of the object:

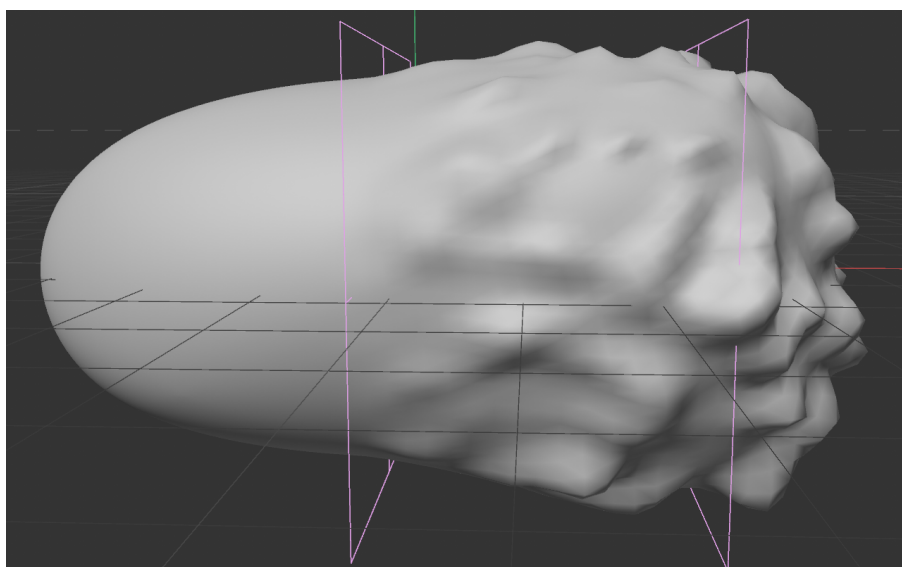


Figure 13. Linear field restricting distortion to part of object

It is not possible to set fields to affect a specific noise layer. What you can do is arrange the position and size of the field so that it only affects the area of the object you want affected. This image shows two fields affecting different areas of the object. Where part of the object is in neither of the two fields, there is no distortion.

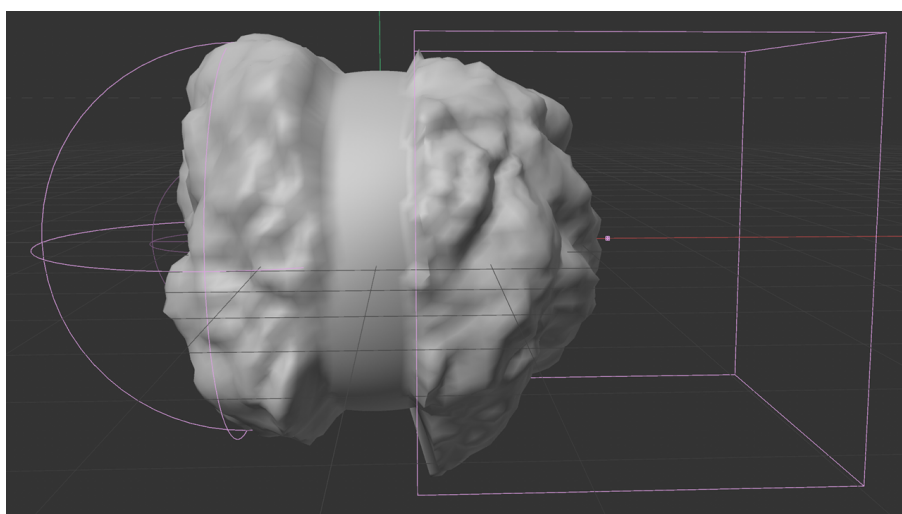


Figure 14. Using two fields to affect different parts of the object

You can set a layer to ignore all fields by turning this switch off.

11. Selection

To apply a noise only to selected polygons, drag a polygon selection tag (on the input object) into this link field. Then the effect is only applied to those polygons.

Of course, this will only work if the input is an editable object so that you can make a polygon selection; it won't work with primitive objects. The selection must be of polygons, not points or edges.

This image uses a Cube as the input object. It has two selections - one is a single polygon at one end, the other is all the other polygons - with different noise layers applied to the two selections. This file is one of the examples in the downloaded archive.

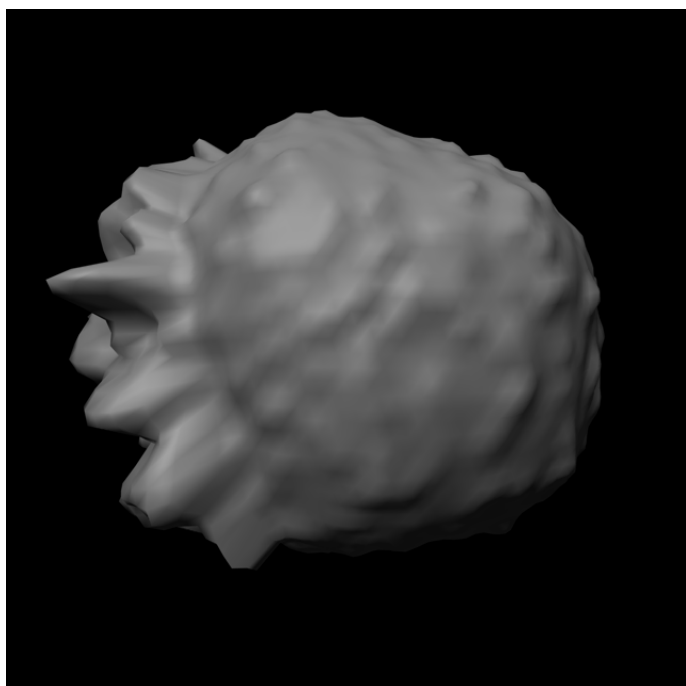


Figure 15. Using different noises on different parts of the object using polygon selections

Hints and tips on using Asteroid Maker

1. Use an appropriate input object. A simple Cube or Platonic primitive works best though other primitives can also be used. Of course, instead of a primitive you can model the general shape you actually want then add that as an input object to the plugin.

2. Don't set the subdivision level too high. It's tempting to use a really high number, because that gives more detail, but overdo it and you can end up with tens of thousands of polygons and a slow viewport and render. It's important to note that you will never be able to subdivide the object sufficiently to match the detail generated by a material-driven displacement. The default subdivision level is 4, which may be a little low for fine detail, but 6 is the recommended maximum you would normally need.

3. The tendency of the generator is to produce a roundish boulder shape. For asteroids, this is pretty much what you need. But if you want to produce some other shape of rock, such as a slab, perhaps with sharper edges, how can you do that?

There are a few options. First, model the general shape yourself and add cuts where you want the edge to be sharper. For example, Figure 16 shows a rock generated from a cube which has extra cuts near the bottom polygon and the one on the left side.

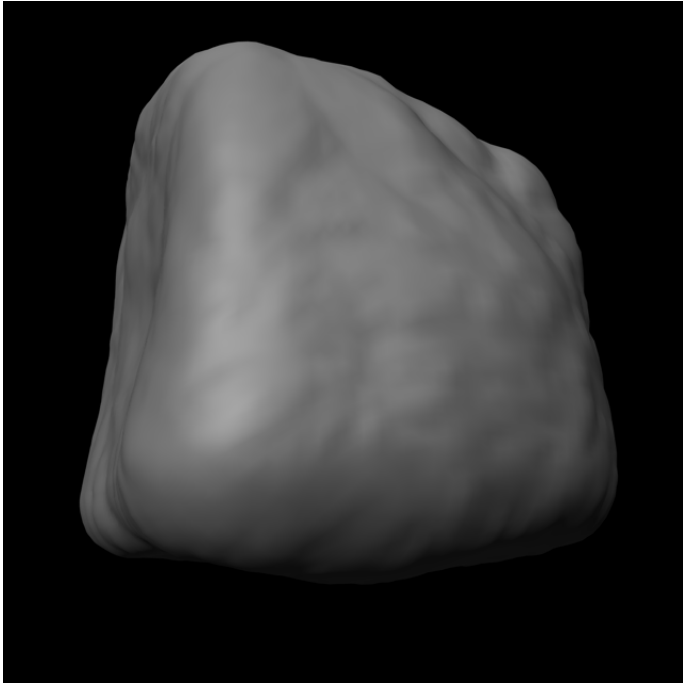


Figure 16. Cube with additional loop cuts near the left and bottom polygons to sharpen the edges

As you can see, the sides with the additional cuts are flatter than the others. This technique does have limitations in how sharp the edge can be, though.

Secondly, if using a Cube primitive, turn on 'Fillet' and adjust the settings to get the desired effect. In this image, the default fillet settings were used:

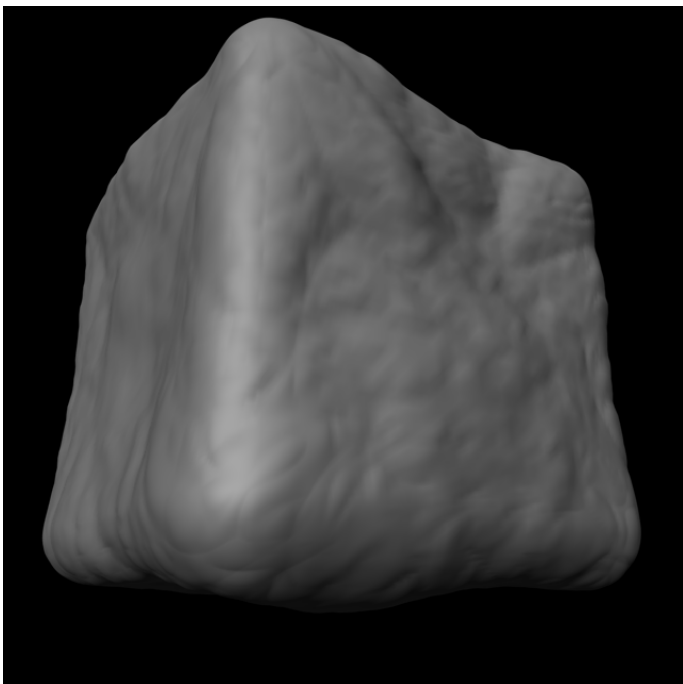


Figure 17. Cube primitive with default fillet applied

The problem here is that the fillet affects all the boundary edges and there's no way to alter that.

The third solution is my preferred one. Add a Bevel deformer as a child object of the Cube (*not* the Asteroid Maker itself). It works in much the same way as the cube fillet, but gives you more control over the result. The advantage is that you can use edge selections in the deformer to affect the edges you want.

Finally, you can simply turn off smooth subdivision, which will restore the boundary edges, but may lead to other issues such as faceting on the object (especially if that is a Sphere).

4. Use Flatten and Elevate sparingly

Or don't use them at all. The settings are there if required but won't necessarily give useful results. Flatten is the more useful setting, but if you use it, make sure that there is at least one other layer than the layer you are flattening because those layer(s) will be exposed when you add flattening. See Figure 18. On the left, there is just one layer (using Electric as the noise). In the centre image, the layer is 50% flattened, so it exposes the raw, subdivided cube, which is not very interesting. In the right-hand image, a second layer using Simple Noise is added, so when the Electric layer is flattened, the Simple Noise still provided some detail.

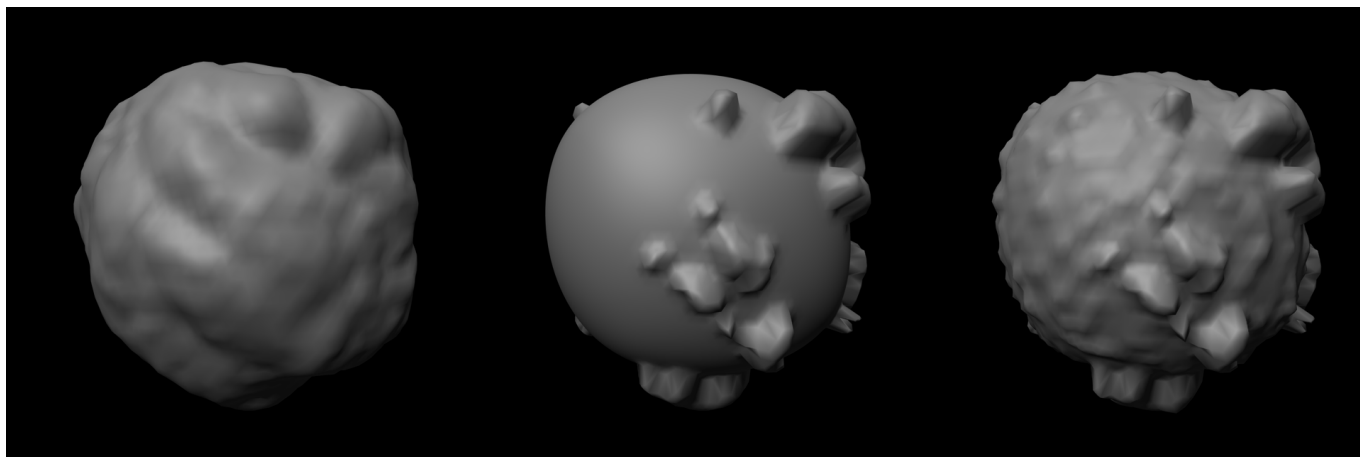


Figure 18. Flattening with multiple layers

5. Use deformers to alter the rock shape

This can give some interesting results. The Bevel deformer was mentioned above, but there are other useful ones such as Taper and Bulge. You can apply the deformer either to the input object or the Asteroid Maker itself; the results from each will be slightly different. This screenshot shows a Cube with 6 subdivisions, smooth subdivision on, and three deformers - Bevel (on the Cube), Taper and Bulge (both on the generator):

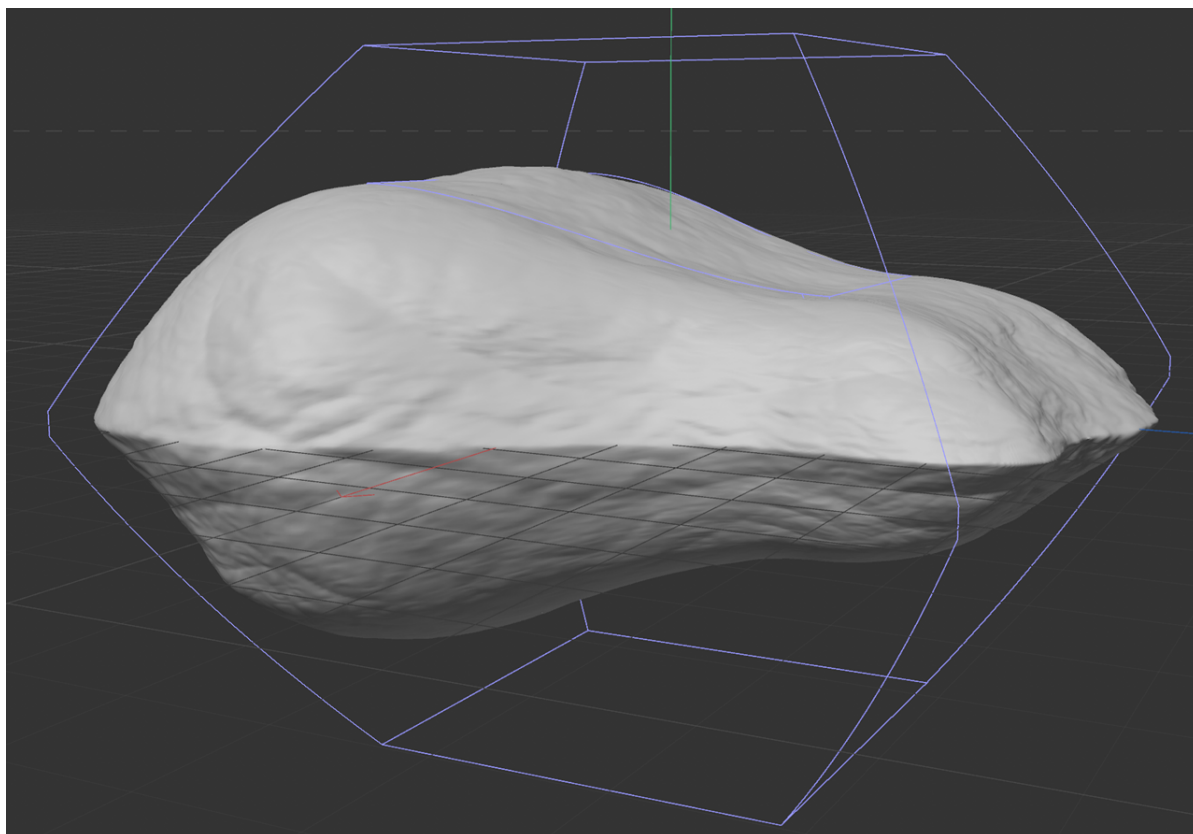


Figure 19. Using three deformers on the objects

Summary

Asteroid Maker generates an object to act as the basis of an asteroid or other rock. For the final result you will need to add a texture of your choice. This plugin is accompanied by an asteroid shader, for which the manual follow below.

Asteroid Shader

Introduction

This is a Cinema 4D standard channel shader plugin. It is designed to be used with the Asteroid Maker object, but can be used with any other object as required. For best results the shader should be added to the displacement channel as well as colour; it can also be added to the bump channel, but that doesn't add very much if displacement is used, and it is strongly recommended to use displacement with or without bump.

Using the shader

Add the shader to the colour channel of a material. Adjust the settings as required, then use the 'Copy to Displacement' button to copy it to the displacement channel. You can do the same with 'Copy to Bump' if required. You will need to change the general settings in the displacement/bump channels as required. As a general guideline, for a Cube primitive with default settings added to the Asteroid Maker, a displacement height of about 3-4 scene units is fine. The default setting of 10 units is a little too high. Sub-polygon displacement must be enabled, and the subdivision level of 4 or 5 should be all that is needed. Turning on the 'Round Geometry' switch is optional, the results vary slightly and you can select whichever is best for the final render.

Important: if you are using the Asteroid Maker plugin, apply the shader to that plugin, NOT its input object.

The result looks like this (using a primitive Sphere without the Asteroid Maker) with all default settings and a displacement height of 4 scene units:

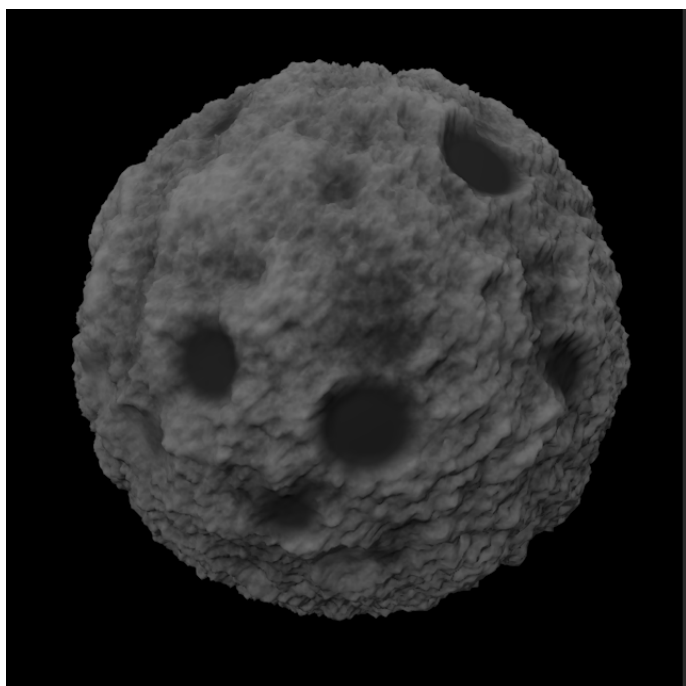


Figure 1. Shader with default settings applied to a Sphere primitive

That's...okay, but can be improved. The default settings are chosen to avoid prolonged render times, so with two enhancements we can get the much better result in Figure 2.

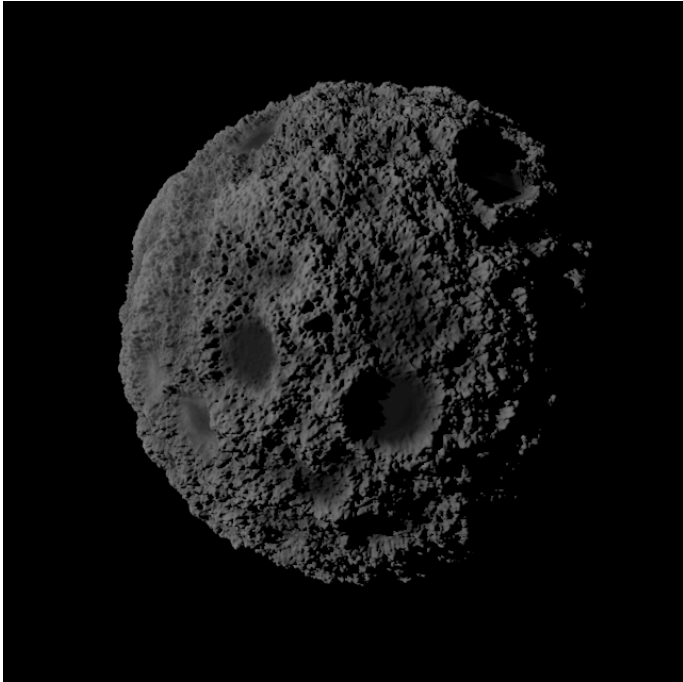


Figure 2. Shader with some enhancements

Only two things were done to get this result. First, the scene is lit with an infinite light and hard shadows, which is what would happen in real life. Secondly, in the displacement channel the subdivision level was increased to 5 from the default of 4. This makes a lot of difference but at the expense of longer render times.

Copying the shader from colour to displacement channels ensures that the settings match across the two channels. If you subsequently change something in the colour channel, you can copy it across to bump/displacement at any time. Any existing shader in those channels will be deleted and a copy of the shader from the colour channel added. However, the settings in the various channels don't have to match if you don't want them to. For example, in Figure 3 the setup is exactly the same as Figure 2, but different noises are used; the colour channel is unchanged but in the displacement channel the surface noise type is different (it is fBm in the colour channel, Electric in displacement). As always, what is right is what works best for the image you want.

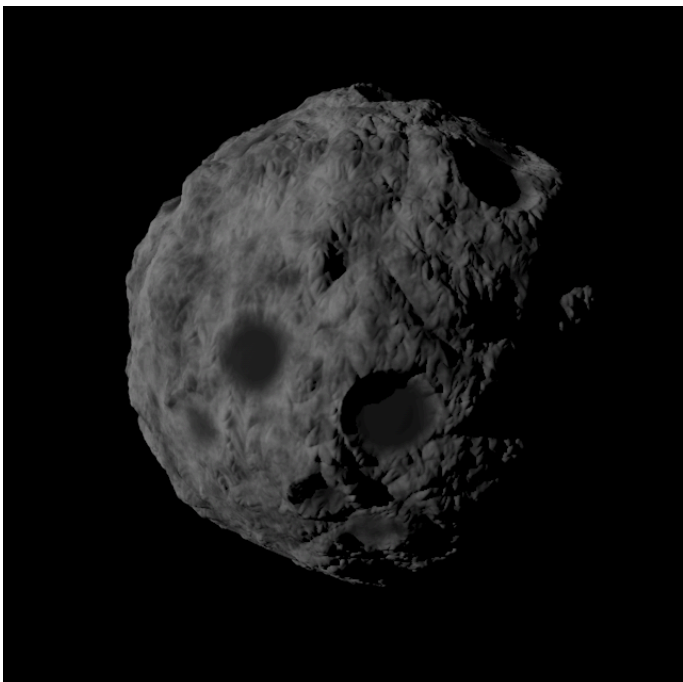


Figure 3. Same as Figure 2 but with a different noise in the displacement channel to that in the color channel

Reference

These are the settings available in the plugin.

1. Output Mode

The settings available in the shader interface differ depending on whether the shader is in the displacement or bump channels compared to any other channel. The output of the shader varies - if in the displacement or bump channels, the result produced is not the same as the colour channel. For one thing, the shader generates an RGB colour in the colour channel but a grayscale value in the bump or displacement channels.

This menu has two settings - 'Color' and 'Bump/Displacement'. If you choose 'Color', which is the recommended setting when the shader is in the material colour channel, the shader's output is a colour obtained from the 'Color' gradient.

In 'Bump/Displacement' mode, the output is the value from the noise is used as an index into the 'Displacement' gradient. This allows you to have two different gradients in the same shader - one for surface colour, and one for displacement.

If you copy the shader from the color channel to the bump or displacement channels using the buttons in the shader, the shader will automatically select the 'Bump/Displacement' option for you. If you add an instance of the shader manually, however, you will need to select this option yourself.

The other reason for this setting is if the shader is used in Redshift. Since Redshift materials don't have shader channels as the standard materials do, when using this shader in Redshift you must select the correct option manually depending on whether you want the shader to provide colour information or displacement. More details on this can be found at the end of this manual.

Surface Settings

These are the parameters which affect the surface other than the craters

2.1. Noise Type

The noise used to generate the surface detail. The menu has a list of those noise types which are suitable for this purpose.

2.2 Scale

The scale of the surface noise. A smaller scale results in more fine detail. This setting does not affect the crater size.

2.3. Color

This is the colour gradient used for the surface colour and is therefore the gradient used when 'Output Mode' is set to 'Color'. The colour is selected using the value of the noise, so that if the noise value is zero the colour at the left of the gradient is returned. If the noise returns a value of 1.0 the colour from the right of the gradient is used. The craters are lower than the surface, so they use the colour from the left of the gradient.

By default a dark grey to light grey gradient is used, but you can use any colour gradient you wish.

2.4. Displacement

This is the gradient used for generating displacement and is available when 'Output Mode' is set to 'Bump/Displacement'. The default is a grayscale gradient from black to white, and although a colour gradient could be used, there is no reason at all to do so, since the output does not colour any surface points but is only used to generate bump mapping or sub-polygon displacement. Of course, you can alter the position or brightness of the knots, add more knots, etc., as required. See this example, which uses a modified gradient to make the crater edges really pop:

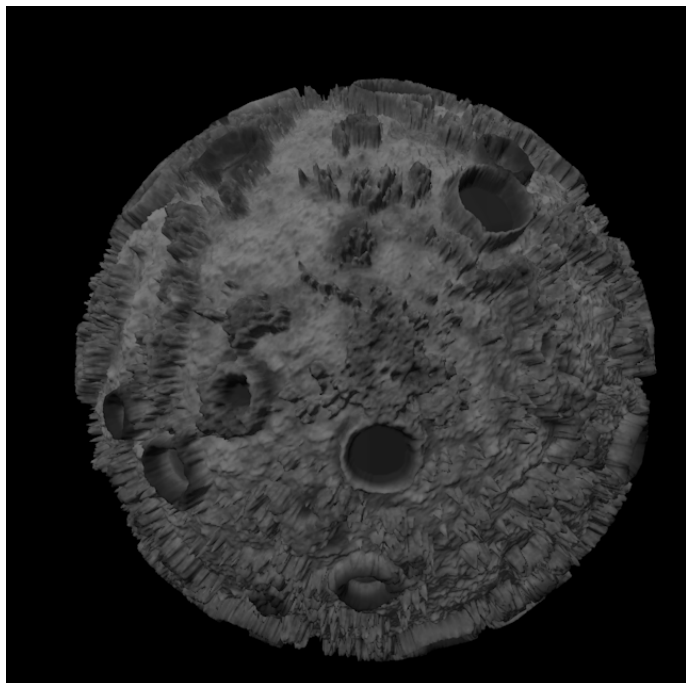


Figure 4. Changed displacement gradient to enhance the crater edges

Or this one, using the default gradient but with the white knot at position 50%. This gives the impression of a very hard asteroid with some corroded patches:

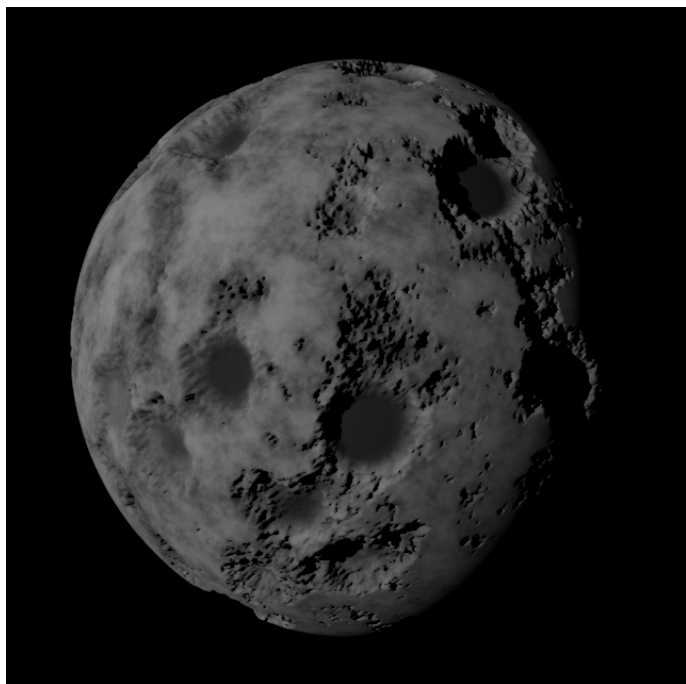


Figure 5. Changed displacement gradient to show a 'corroded' asteroid

2.5. Remap Gradient

One problem is that not all noises produce a value in the full range 0.0 to 1.0. Some (such as fBm) seem to

produce values mostly in middle of that range. This means that, if the value is used as an index into a gradient, only the colours in the middle are used and those at the left and right ends are hardly used at all.

You can change this by remapping the returned value to a wider range. As you increase the value in this setting, the colours are increasingly selected from the ends of the gradient rather than the centre. Note that if this value is 50% (the maximum possible) the colour returned is always pure black.

You can use this setting in either output mode although it is most useful for colour rather than displacement.

2.6. Noise

This setting, only available in colour output mode, adds some randomisation to the colour selection, so the result is not so linear a change in colour.

2.7. Seed

The seed value for the surface noise. Change this for a different pattern. This does not affect the craters, which have their own seed.

Craters Settings

3.1. Shape

There are two options here which affect the shape of the craters. The first is 'Circular', which produces, well, round craters; the other is 'Irregular' which generates craters with a more ragged boundary. The differences are not great, but they are noticeable, especially at higher 'Definition' values (see below).

3.2. Scale

The size of the craters. Increasing this value will result in larger but fewer craters; reducing it will cause the craters to be smaller but there will be more of them. In both cases, you can alter the number of craters with the 'Coverage' setting.

3.3. Coverage

This controls how much of the surface is covered in craters.

3.4. Definition

This setting concerns the demarcation of craters from the surface. A high setting will cause the craters to have a sharp, punched-out appearance. A low setting will cause a more gradual merge of the crater into the rock surface. The three images in Figure 6 show from left to right definition settings of 60%, 85% (the default) and 95%.

3.5. Seed

The seed value for the crater generation. Change this if you don't like the crater pattern.

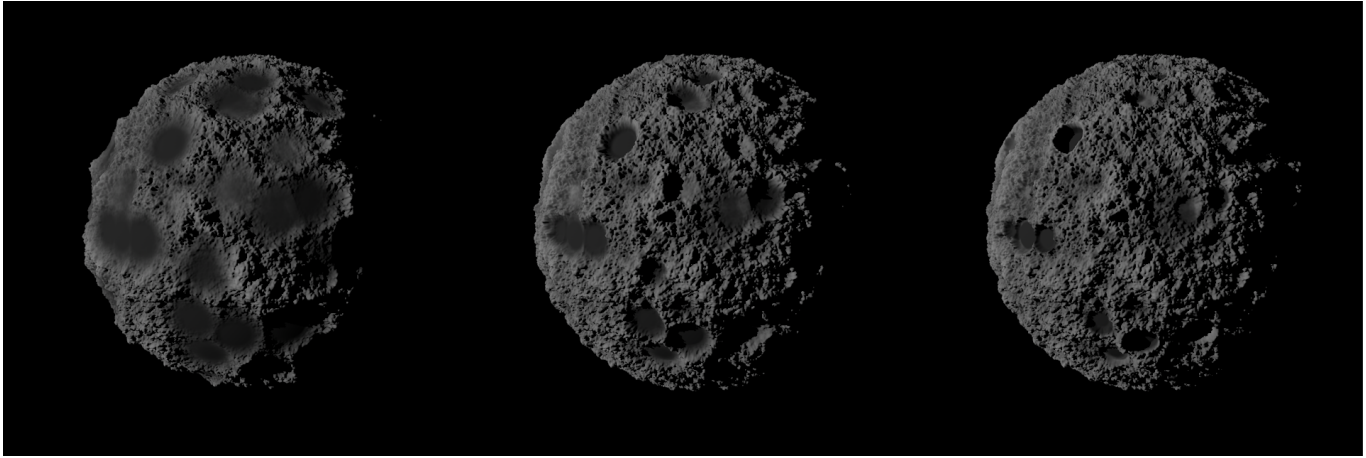


Figure 6. Crater Definition values of 60%, 85% and 95% from left to right

Color Correction Settings

The next four controls are colour correction settings which are the same as used in any other software. Very briefly they are:

- Brightness: alters the brightness of the colours; 100% gives white, and -100% results in black.
- Contrast: alters the contrast between different colours.
- Saturation: alters the colour intensity; the brightness is unchanged but the colour looks more or less vibrant depending on the setting.
- Gamma: alters the gamma value applied to the output colour.

Note that if 'Output Mode' is set to 'Color', these controls affect the colour output only (i.e. the 'Color' gradient). If the mode is 'Bump/Displacement' the colour from the 'Displacement' gradient is affected.

Hints and tips on using this shader

1. Lighting

The best results are seen with lighting added to the scene. Compare Figures 1 and 2 in the shader manual. In Figure 1, the only lighting is the C4D default light. In Figure 2, an infinite light with hard shadows has been added. Note how the surface detail really stands out when shadows are cast by it.

2. Using a Sphere

It is likely that everyone knows this but if your asteroid is based on a Sphere primitive, be sure to turn off 'Render Perfect' in the Sphere settings, because if you don't you won't get any displacement.

Also, when using a Sphere you will probably want to turn on 'Round Geometry' in the displacement channel settings, because you might see some surface faceting if you don't.

3. Reflections

This is a tricky one. If you leave the default reflectance settings as they are, you will get a weird, shiny asteroid that doesn't look right (unless that's what you want, of course). On the other hand, a small degree of diffuse reflection can be useful. A reflectance type of Lambertian or Oren-Nayar with a specular strength of 10% is fine if any reflectance is needed.

4. Using the shader in Redshift

Since it isn't possible to write a native Redshift node to reproduce this effect, you must use the C4D Shader material to use this shader in Redshift. It's not difficult but there are a few steps to follow. Because this applies to all the shaders I've written, there is an article on my website with full details of how to use standard Cinema 4D shaders in Redshift, you can find it at https://www.microbion.co.uk/html/blog31_01_25_c4dshader_redshift.php.

Unfortunately this shader does not work as well in Redshift as it does in the standard renderer. The problem is that there are seams in the texture when applied to an object, and these can't be removed. This happens because the shader uses the C4D Noise shader (not the Redshift Maxon Noise node) as the method of noise generation, and in Redshift this node only works in 'UV (2D)' space. You can see this if you try the Noise shader itself, or any other noise-based C4D shaders such as 'Rust'.

The seam may or may not matter to you - you can always rotate the object so that the camera doesn't see it. Another possible solution is to create the object in the standard renderer, then when it is as you need it, bake the textures to bitmaps and use them in a standard Redshift material. In some cases, this will remove seams or reduce the visibility of them.

Neither is an ideal solution. A third possibility is to create a Redshift node tree which does the same job as the shader and use that. A basic node tree is provided as part of the downloaded archive. Feel free to experiment with this and improve it as desired. This image shows the results with the default settings:

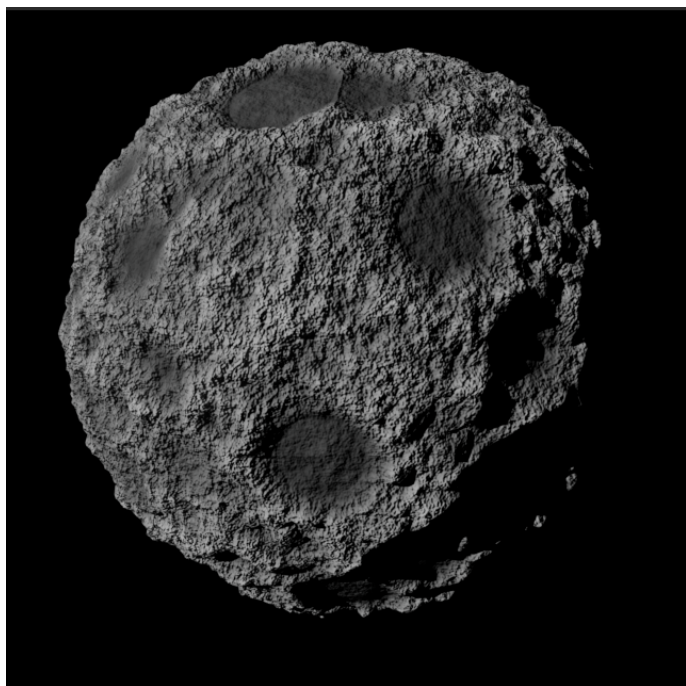


Figure 7. Redshift node version of the shader

As you can see, the results are as good as the shader in the standard renderer but there are not as many adjustments that can be made easily to it. Experimentation with the various nodes may yield good results.

Summary

The Asteroid Shader can either be used on its own or as a complement to the Asteroid Maker object. If you need to contact me about either plugin, please go to <https://www.microbion.co.uk/html/contact.htm> and I will respond as soon as possible.

Steve Pedler
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