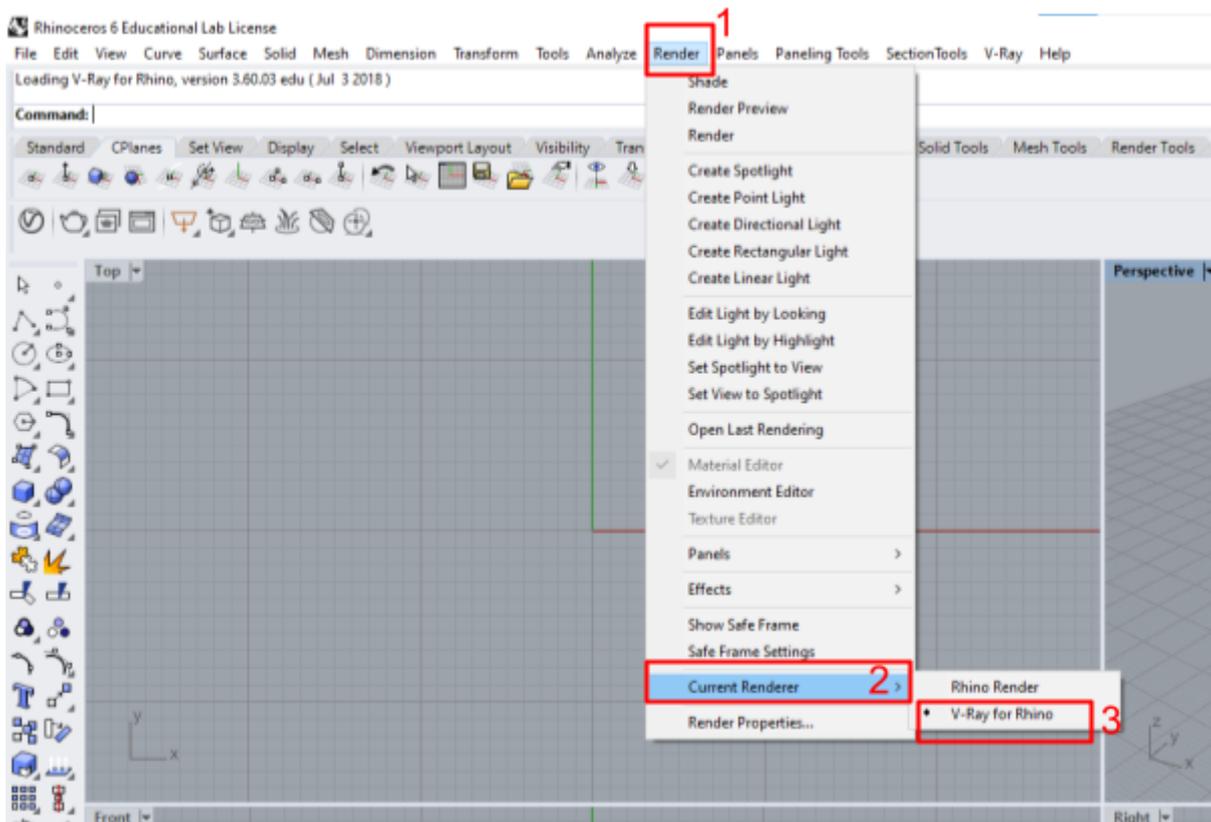


Rhino tutorial (rendering)

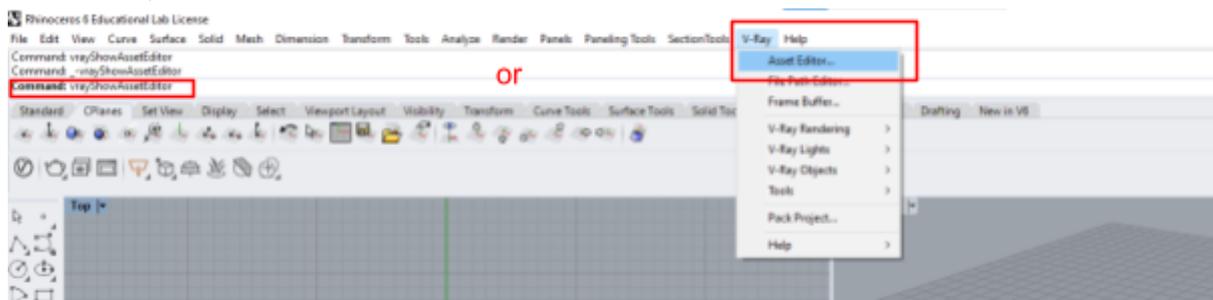
- Creating renders through V-ray/ Rhino renderer
- Using the sun tool for shadows
- Applying materials and textures to your models
- Setting and saving views for renders

V-ray:

- V-ray is a plugin for CAD software, including Rhino, Sketchup, M4ya, Revit etc
- You will need to install v-ray onto your device; the uni computers already have it installed- there are limited numbers of licenses for nicai so there might be a shortage if high demand
- To turn on v-ray, open Rhino and go render----> current renderer ----> v-ray

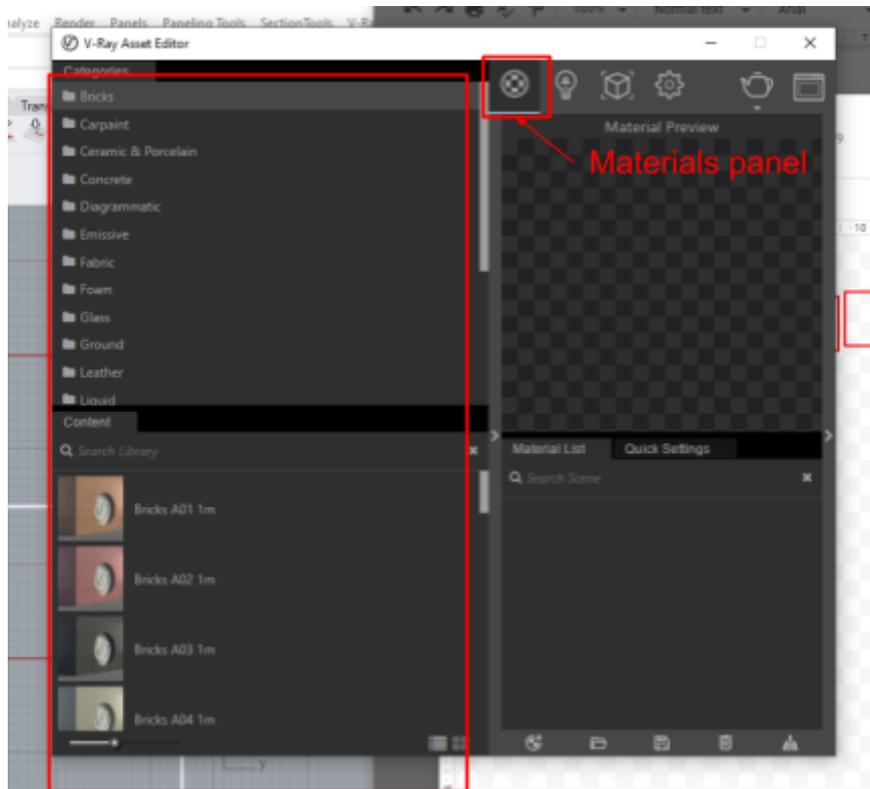


- Open the v-ray asset editor by going v-ray ----> asset editor (you can also type 'vrayshowasseteditor' in the command bar)

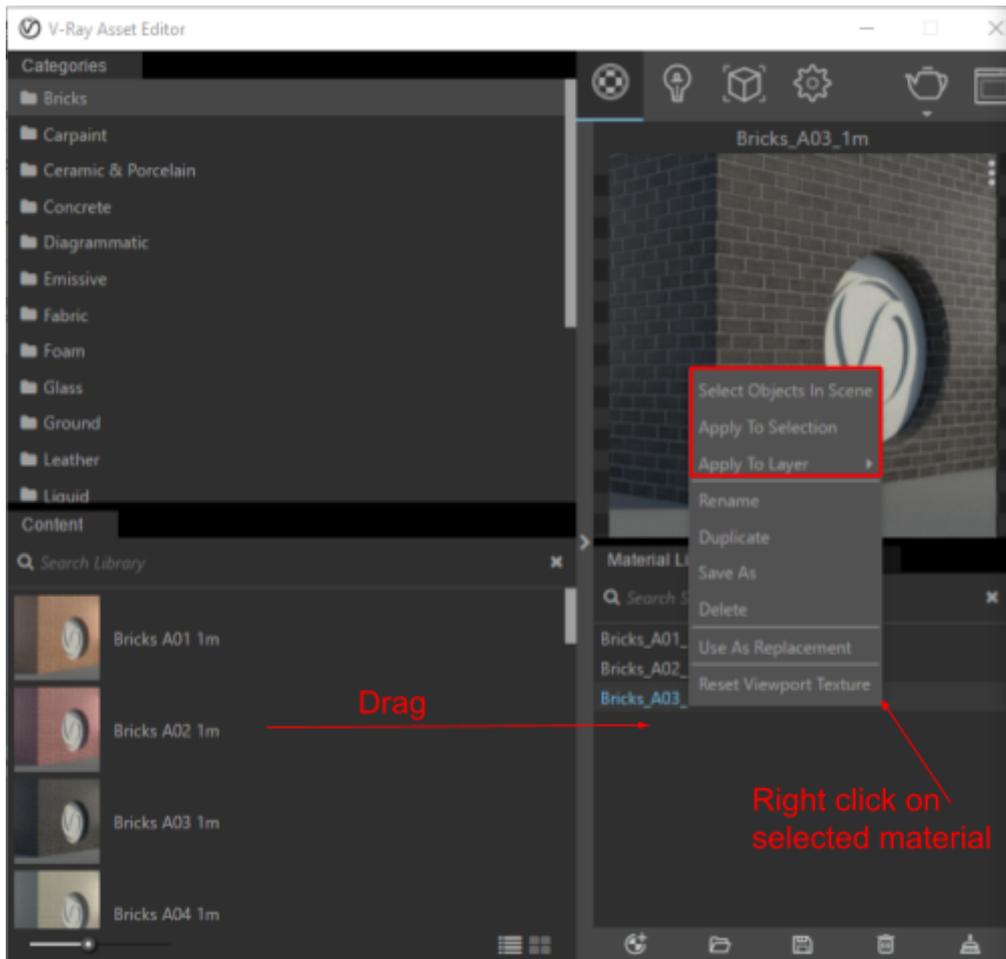


Applying materials from v-ray

- Vray has a built in materials library you can use when applying materials to objects; otherwise you can download materials from online as .vismat and import if necessary

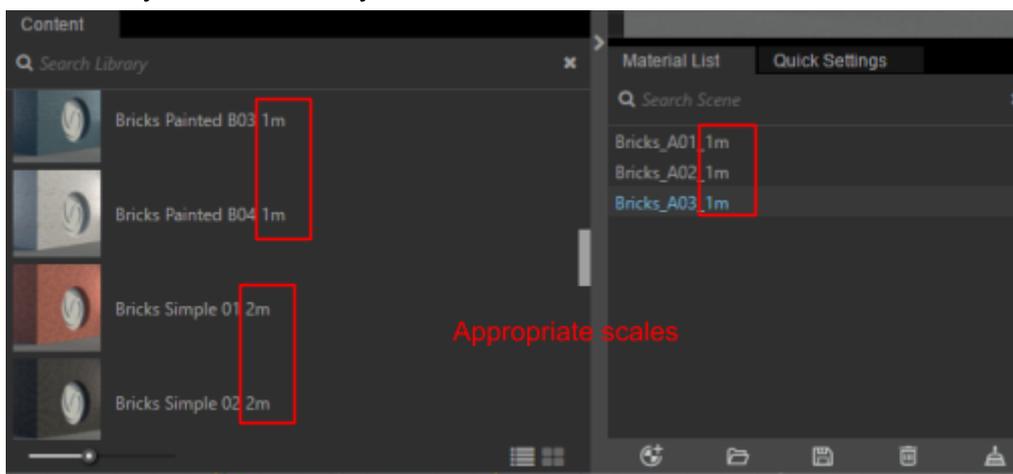


- Add your selected material to your object by right clicking the material in the library list ---> apply to selection (pre-select your object first)
Or:
Drag the material from the library to your material list ---> right click material---> apply to selection (pre-select your object)
- You can add a single material to all the objects on a layer by dragging material from library to material list ---> right click on material ---> apply to layer ---> select applicable layer
 - I.e. you can separate your built objects into layers according to what material it is
 - You can rename your layers to indicate your material
- You can select all the objects with the material applied by right clicking the material in the materials list ---> select objects in scene (good if you want to substitute or change material)



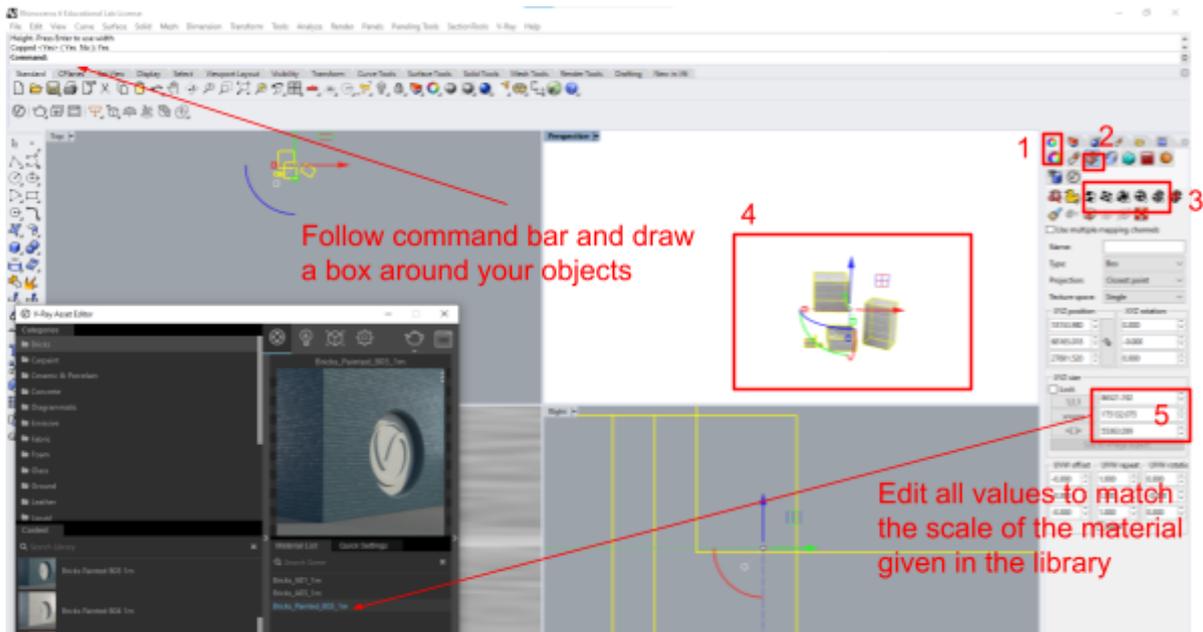
Texture mapping

- Materials might not be applied to your objects at the right scales
- Vray materials library indicates the scale of the materials



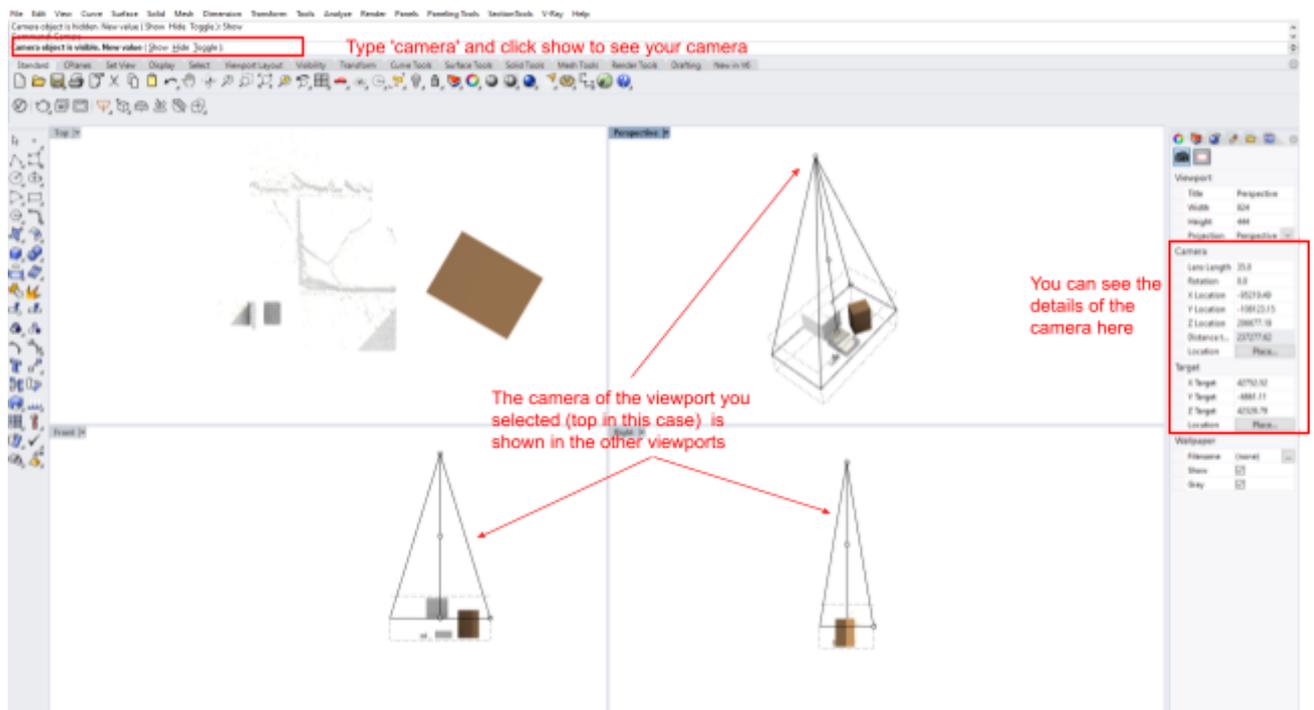
- In Rhino, select the models to texture map ---> properties ---> texture mapping ---> choose applicable mapping system (box (most commonly used!)/ cylinder/ spherical etc) ---> snap onto the object/ draw around all the objects ---> capped (copy texture

on the top and bottom surfaces)? ---> change all xyz values to match the given scale (remember to adjust according to the units of your project)

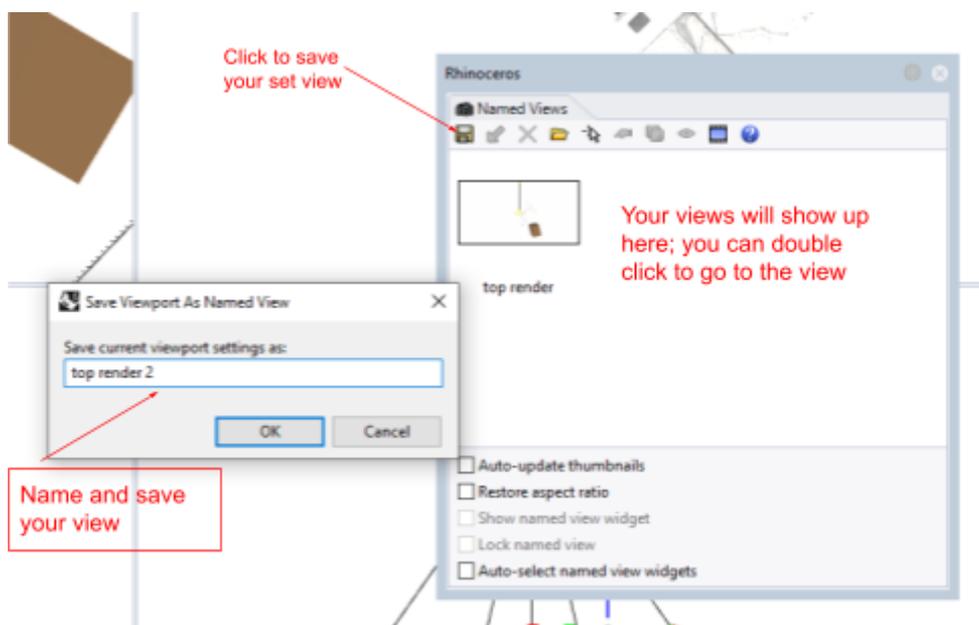
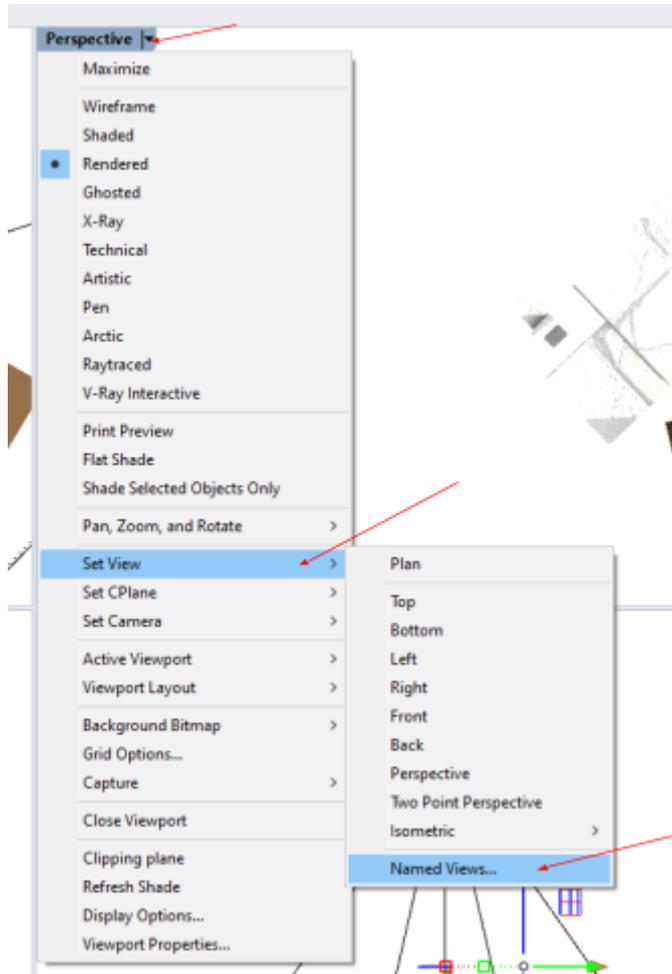


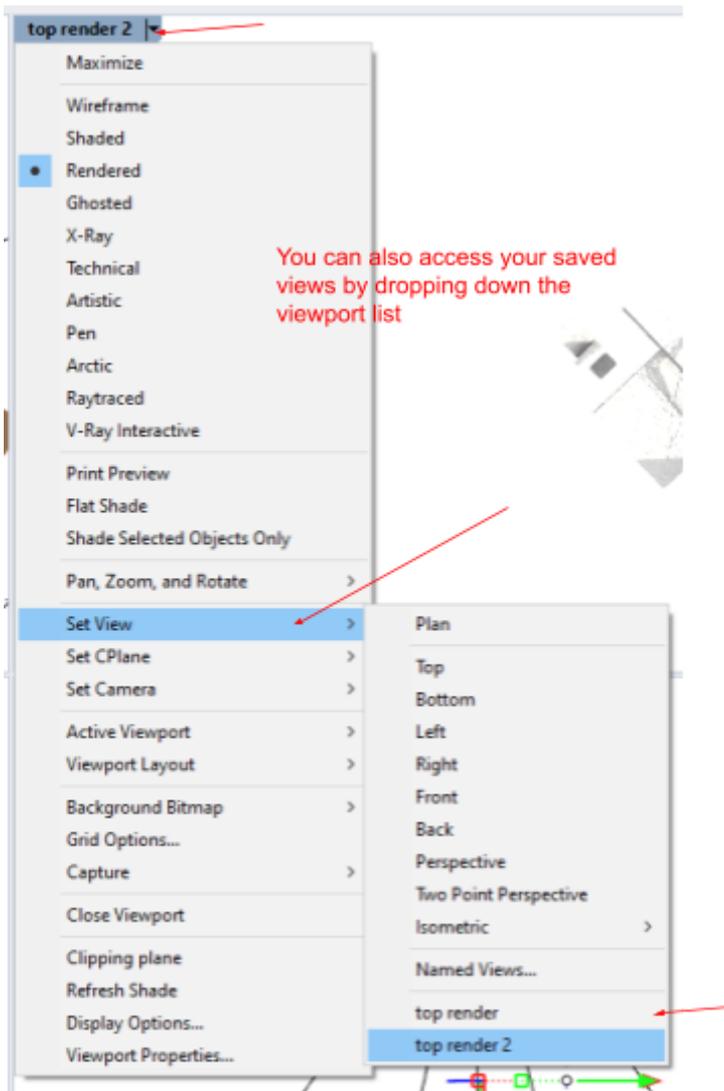
Camera and views

- You can set your camera to a desirable view and saving it when you decide to render
- You can move around in your viewports to choose an angle you think is good to showcase your project
- Choose your desired viewport (e.g. top, perspective) then type 'camera' ---> click 'show'. Your camera bounds will show in the other windows



- You can change the view by dragging the camera; the camera will also move according to how you move in the selected viewport
- You can only show the camera of one view at a time
- You can save your view for later by dropping the viewport list ---> set view ---> named view ---> save as ---> name your view

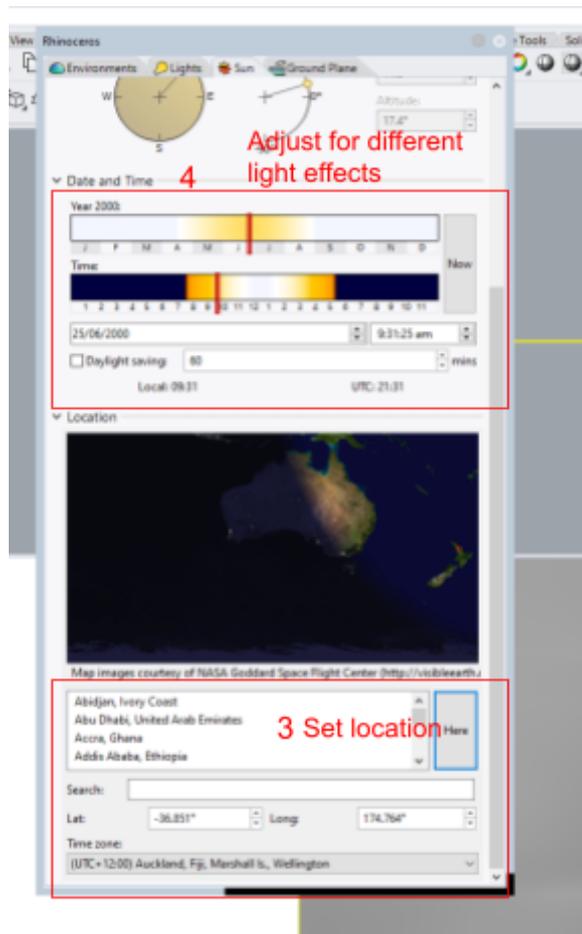
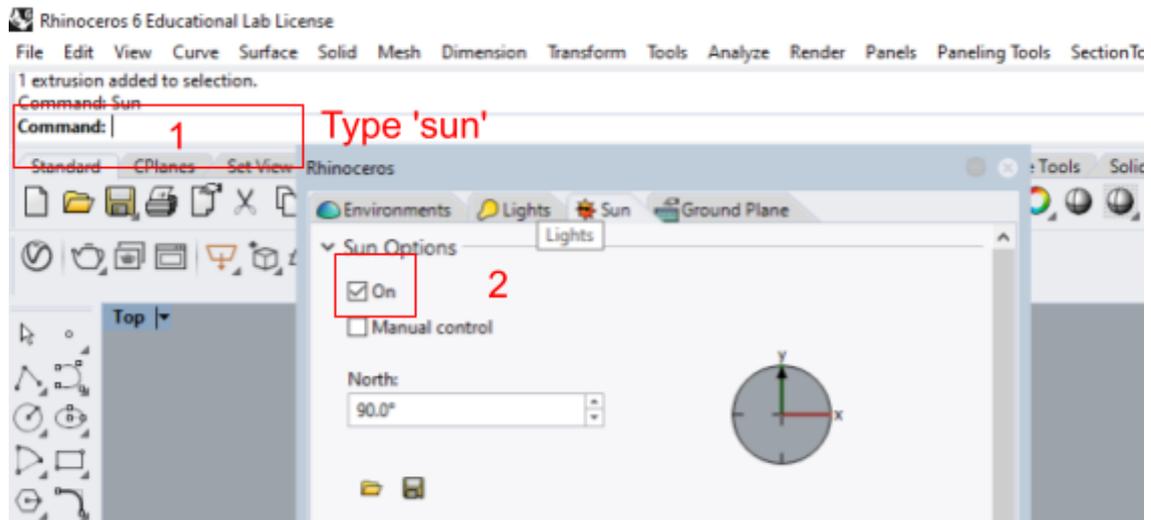




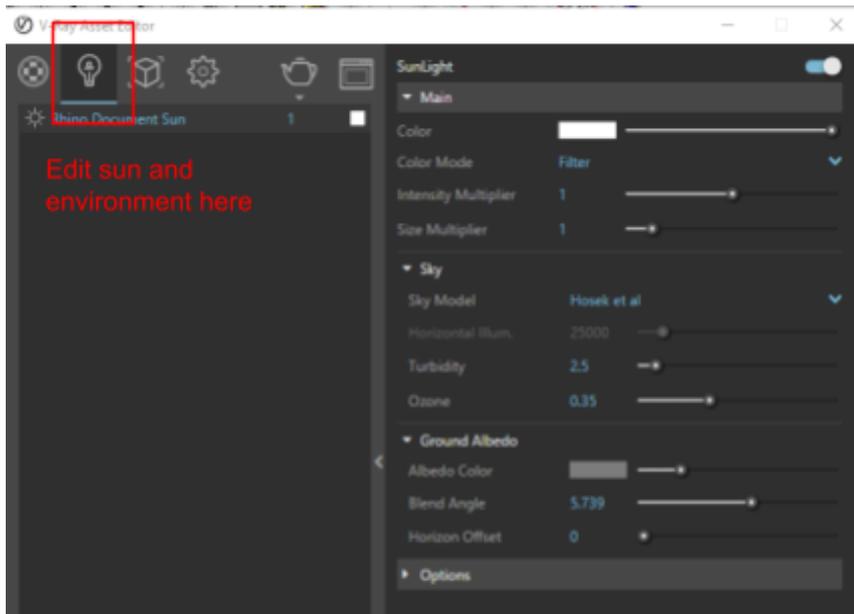
- Very useful if you need to extract linework to lay over your renders- will mesh perfectly

Sun

- You can turn on the sun in Rhino to create natural shadows
- You can adjust the angle of north in your file for more accurate results (e.g. if you rotate your model)
- In the command bar, type 'sun' ---> on ---> select appropriate location ---> (change the year if you want) ---> drag the month and time of day rollers to adjust the sun



- You can see the different effects by going into render mode or setting a low-quality test render or using the interactive render mode in v-ray
- You can edit your sun/ sky/ environment settings:
 - Change colour- warmer/ cooler light
 - Intensity- intense vs softer
 - Change sky
 - Ground albedo- the reflectiveness of the ground



Lights

- You can add different types of light



EditLightByHighlight

Add lights based on highlight locations.



DirectionalLight

Insert a light with parallel rays pointing in a specified direction.



LinearLight

Insert a tubular light.



PointLight

The PointLight command inserts an omni-directional light.



RectangularLight

Insert a rectangular directional light.



Spotlight

Insert a light cone object.

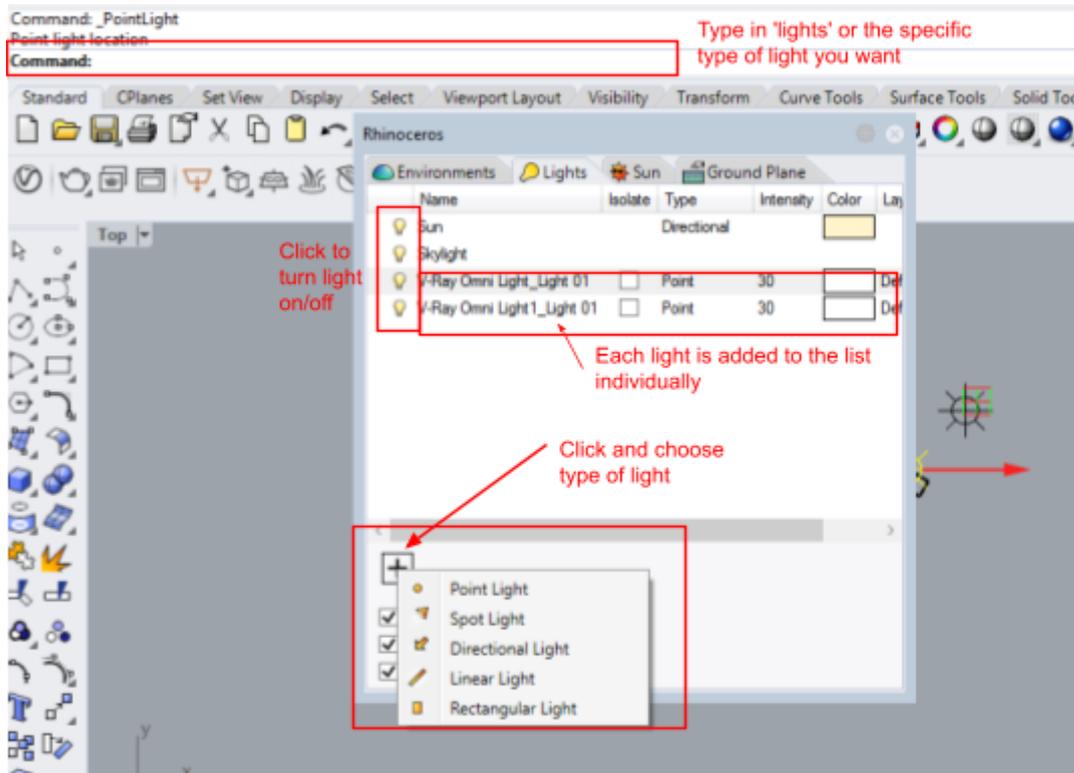


Sun

Open the Sun panel.

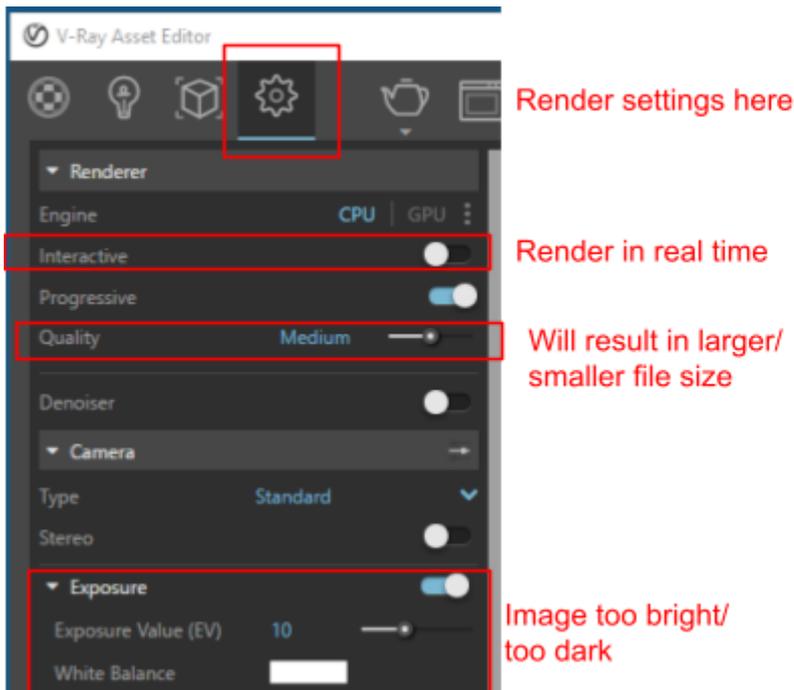
- You can type in 'lights' to open the panel and click the plus sign and choose to add a specific light
- Or type the specific type of light you wants (spotlight, directional light etc)
- Place where you want the light to be- you can gumball it if necessary
- Click the light icon to turn the light/ sun on/off

- Each light is added individually- easier to keep track of if you put all lights on one layer and show/ hide the layer as necessary



Render settings

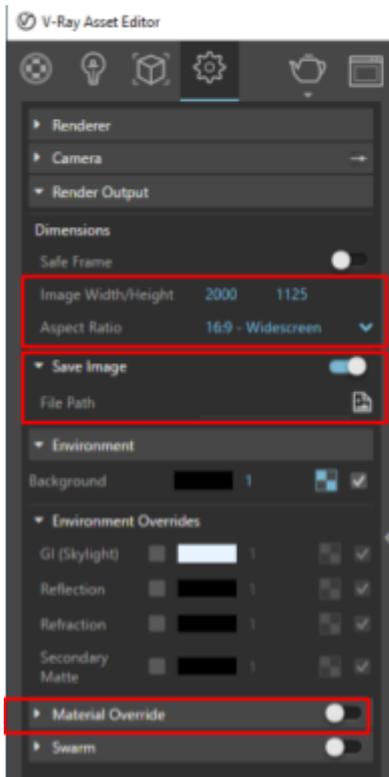
- Change exposure value if the image is too bright/ too dark
- You can turn on interactive mode to see changes you make rendered immediately- keep your file size small for this otherwise it will lag. You can turn it off and enlarge your output size when you're happy with the effects.



- Change dimensions according to your page size (e.g. a4/ a3 etc): render settings ---> render output ---> dimensions ---> change image width/height accordingly

DIN-Formate	in mm	enthalten in A0	Pixel bei 300 ppi (dpi*)	Pixel bei 150 ppi (dpi*)	Pixel bei 72 ppi (dpi*)	Größe in qm	in qm bei Teilung von 1
A0	841 x 1189	1 x	9933 x 14043	4967 x 7022	2384 x 3370	0,999949	1
A1	594 x 841	2 x	7016 x 9933	3508 x 4967	1684 x 2384	0,499554	0,5
A2	420 x 594	4 x	4961 x 7016	2480 x 3508	1191 x 1684	0,24948	0,25
A3	297 x 420	8 x	3508 x 4961	1754 x 2480	842 x 1191	0,12474	0,125
A4	210 x 297	16 x	2480 x 3508	1240 x 1754	595 x 842	0,06237	0,0625
A5	148 x 210	32 x	1748 x 2480	874 x 1240	420 x 595	0,03108	0,03125
A6	105 x 148	64 x	1240 x 1748	620 x 874	298 x 420	0,01554	0,015625
A7	74 x 105	128 x	874 x 1240	437 x 620	210 x 298	0,00777	0,0078125
A8	52 x 74	256 x	614 x 874	307 x 437	147 x 210	0,003848	0,00390625
A9	37 x 52	512 x	437 x 614	219 x 307	105 x 147	0,001924	0,001953125
A10	26 x 37	1024 x	307 x 437	154 x 219	74 x 105	0,000962	0,0009765625

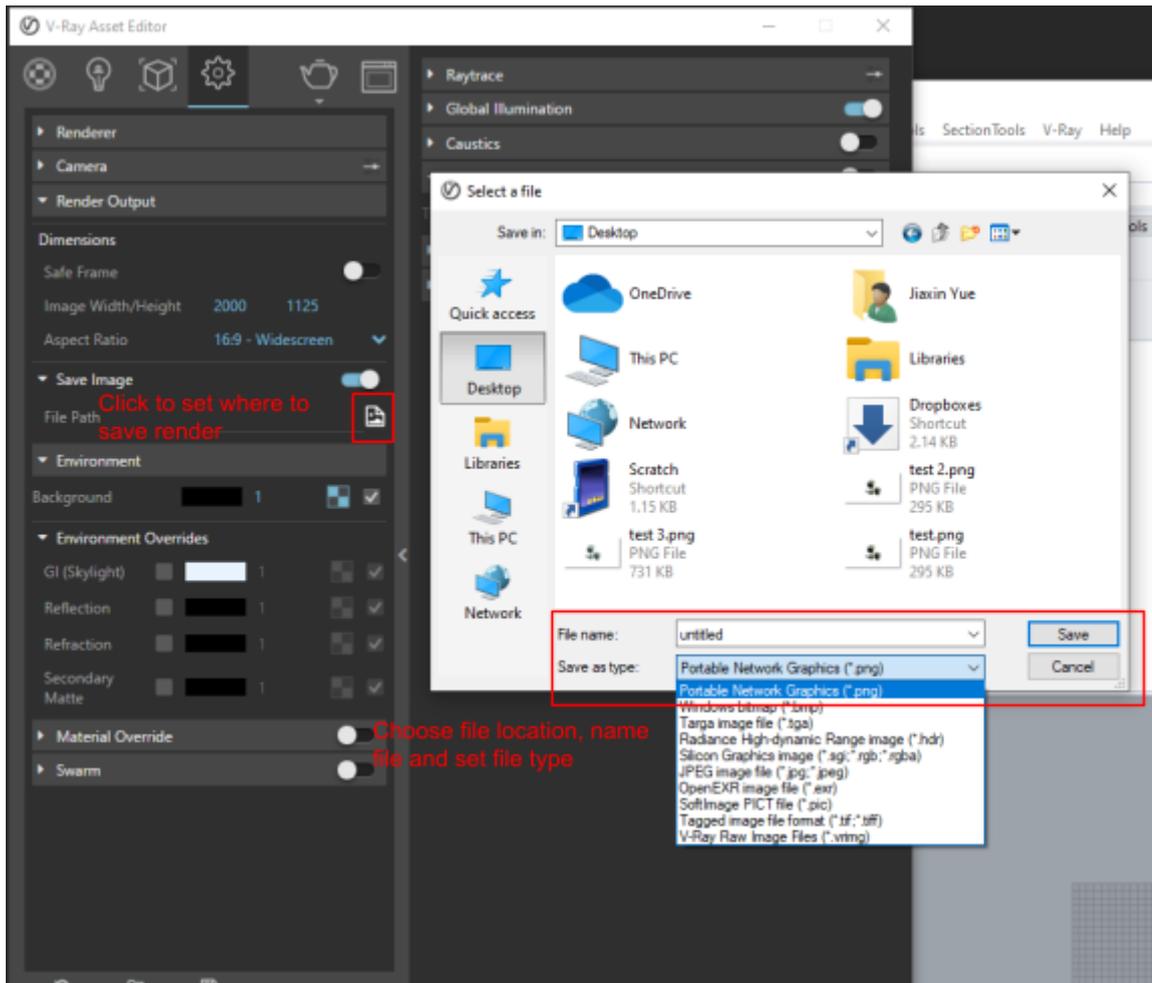
- Keep in mind the specs of your computer- more powerful computers are able to render larger/ higher quality images
- Rendering slightly smaller and enlarging in photoshop does work sometimes without reducing the quality of your render
- You can set where to save your render automatically after it finished rendering: render settings ---> save image ---> click the image icon ---> select location, name file, choose file type.
- Remember to change the name of your file before setting a new render- otherwise it will save over the previous render you have done!



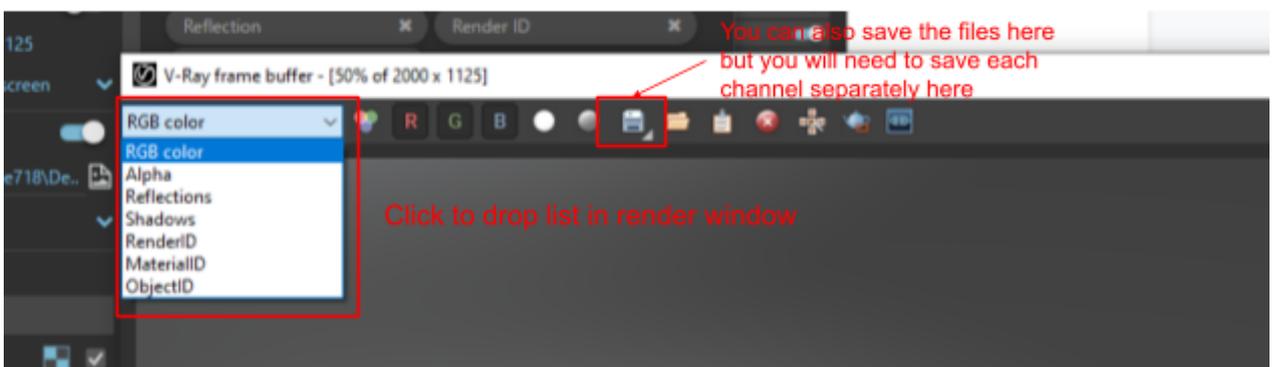
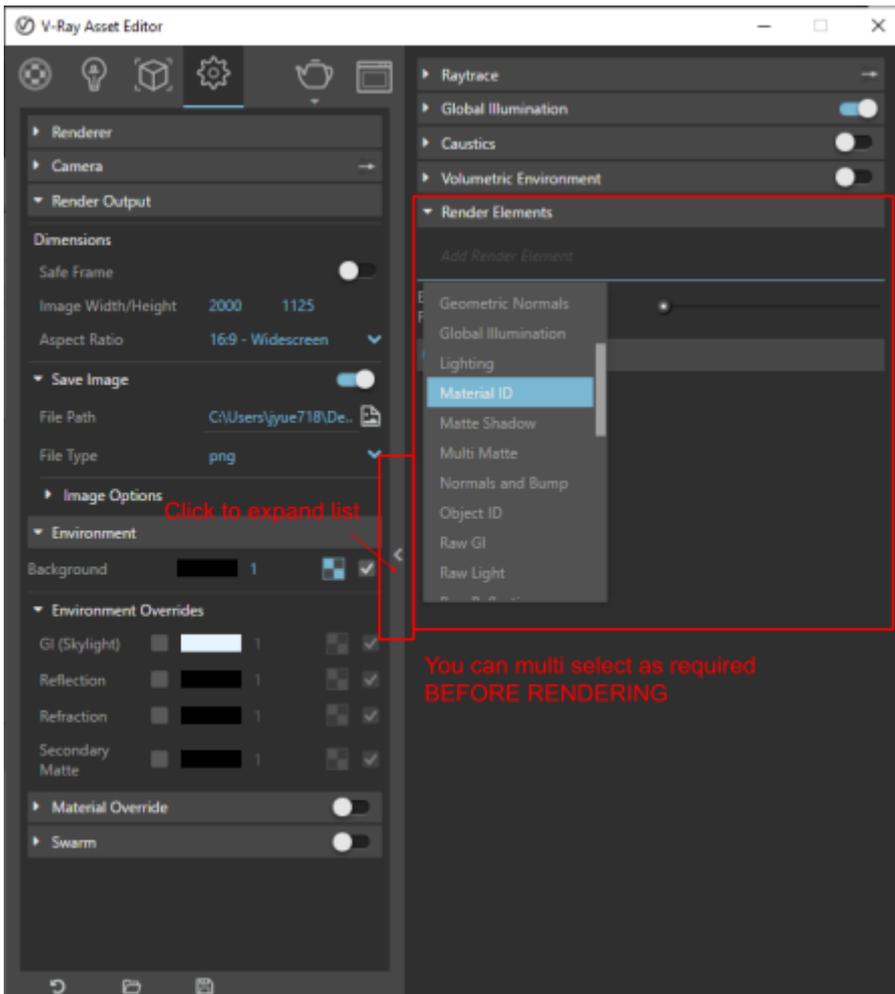
Edit according to how big your drawing should be

Name and select where you want to automatically save render when completed- SET FILE AS PNG

Turn on to remove all materials for a white render



- Expand the render setting list---> render elements ---> add render elements ---> select ones you require
- Do this step before you render, so when it is completed, it has multiple channels for easy post production (e.g. selected particular elements etc)
- These will be automatically saved in the same location
- You can also access the elements in the render window to check



- Click on the little teapot shape or type 'render' in the command bar to start your render

