Art Pipeline

Overview

Concepting

3D Modeling

Examples &
Results

Quick Info

We'll be going over the art pipeline mainly for prop creation from start to finish, and how we'll make our models to be well optimized from the start. There will be two people overviews for concept artists, and then one for 3D modelers

If you have any questions please reach out! I'm more than happy to go over the process step by step to make sure everyone is on the same page!

Concepting

- Title & Labels
- Sense of Scale
- Simplicity is Key
- Understanding the 3D Process
- Color Swatch Workflow
- Usable Sketches
- Flexibility as an Artist

3D Modeling

- Tech Specs
- Modeling Guidelines
- UV Set: Flat Color
- UV Set: Scratch Detail
- UV Set: Paint Detail
- Final Set-Up/Look


Let's Jump In!

Concepting

What a Successful Concept Should Have:

1. *A title and labels*
2. *A sense of scale*
3. *Simplicity so that the sketching process is quick, and then able to add more detail if requested/needed*
4. *A basic understanding of how assets are made and what is practical, possible/not possible*
5. *A consistent color palette across the board using the exact color swatches and gradients in the texture atlas that 3D artists are using*
6. *Drawings that not only clearly communicate what an object is, but are also drawn in a way to be easily understood by a 3D modeler without needing additional clarification*
7. *Flexibility and understanding that designs, colors, and general ideas will be revised and redrawn often if needed*

Titles and Labels

Concepts are all about telling other people about visual ideas. When people are working with concepts having a title for the image you deliver helps set the 'official name' for the team to be able to talk about the assets easily and find your images.

Every prop you draw should have a title so that everyone on the team is all on the same page of what something is called and referred to as.

Some Example Concept Sheet/Prop Titles:

Sheet Title Examples

- TreeSet_01
- BuildingSet_02
- DesertProps_05
- FarmProps_05
- Etc.

Prop Label Examples

- SM_EvergreenTree_01
- SM_Barrel_03
- SM_ChargerEnemy_Rhino
- SM_ChargerEnemy_Bullhorn
- Etc.

In some instances using a word to describe the variant is more useful than a number

Notes directly on the concept are just little things you would want modelers to keep in mind when making the asset, such as the shape or the thickness of something etc. It can also include story elements of why that prop looks the way it does and how it fits into the world around it.

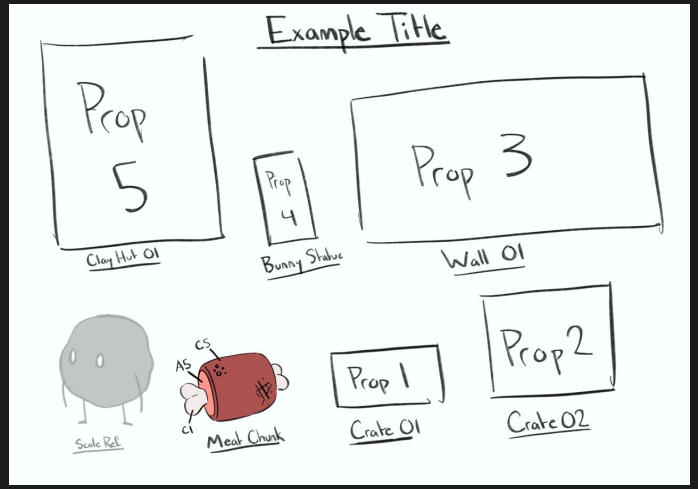
A Sense of Scale

When I mean sense of scale, there should always, in every single concept, be the main character there as well to convey how big everything else is.

Scale is not only about realistic proportions across different objects compared to the character, *but also about visual complexity and the position of the camera in our game.*

Since we are going more tunic style with the perspective, it is important to keep in mind that small tiny props and objects will clutter our game and be too distracting.

To the side is an example of a concept with a sense of scale with the character scores multiple props (and look, they also did labels too!) as well as a sketched version of what our concepts could look like.



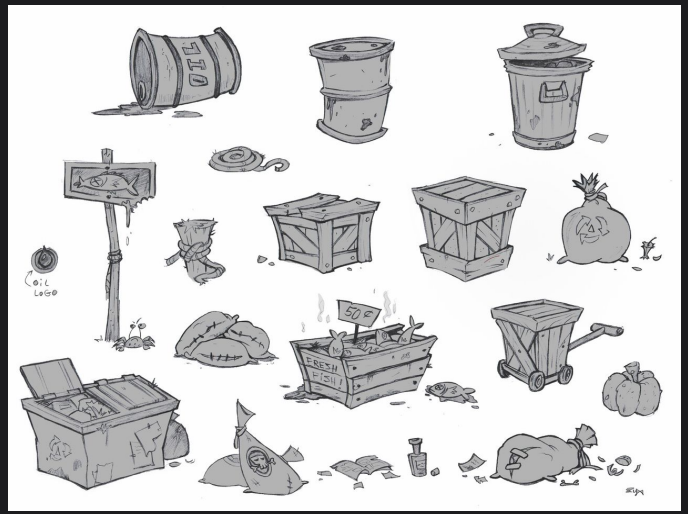
Sketch First, Detail Later

We need concepts quickly, as 3D modelers are unable to work on anything until they are done. We also want to keep everything to sketches so that *if something needs to be re-drawn or even thrown away, then not a lot of effort or time would be wasted*

The concepts from the slide before are examples of too much detail. Usually those concept artists polish them for their portfolio, or they only add detail once the initial sketch is approved

These images are examples of what to expect and deliver in terms of prop designs on their first draft

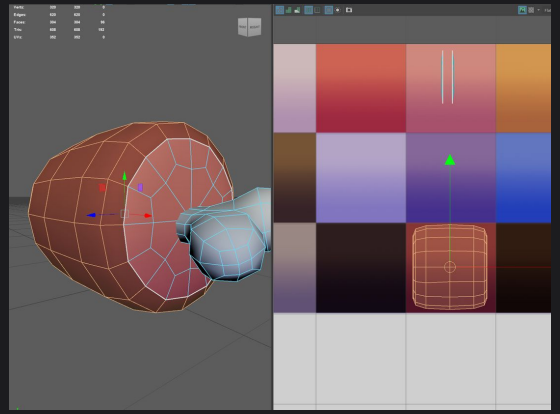
Just simple sketches without worrying about shading or small details. Color passes should only happen once the sketch is approved, and then another check will happen for the coloring as well. If more detail or perspectives are needed, that will only happen on a case by case basis.



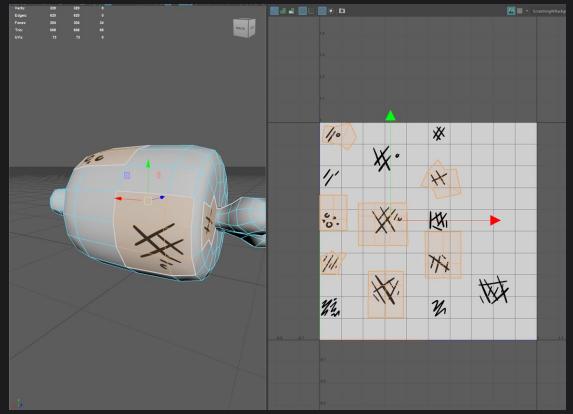
A Basic Understanding of How Assets Will be Made/Used

The props and assets that we use in our game follow a particular process so that when the game is finished, it runs smoothly and efficiently on the Switch (a very low performance platform). That means when creating ideas, we need them to fit within those constraints so that they can actually be made. Not only that, but also understanding how the concept is used and how props are placed is important as well

In general, all assets in our game will have flat colors. This means that patterns or particular details will not be possible to make. The only details we can have are different colors on large parts of the asset that will be present in the model, and the scratch details.

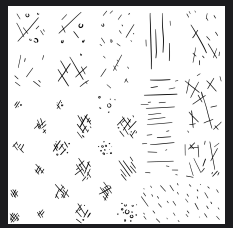


UVs are placed within the squares of the flat color texture

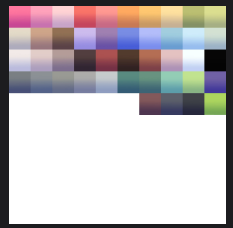


Pieces of the model are UVed to the pre-existing scratches

Here are the atlas textures we will use, and how the model will reference them using different UV sets

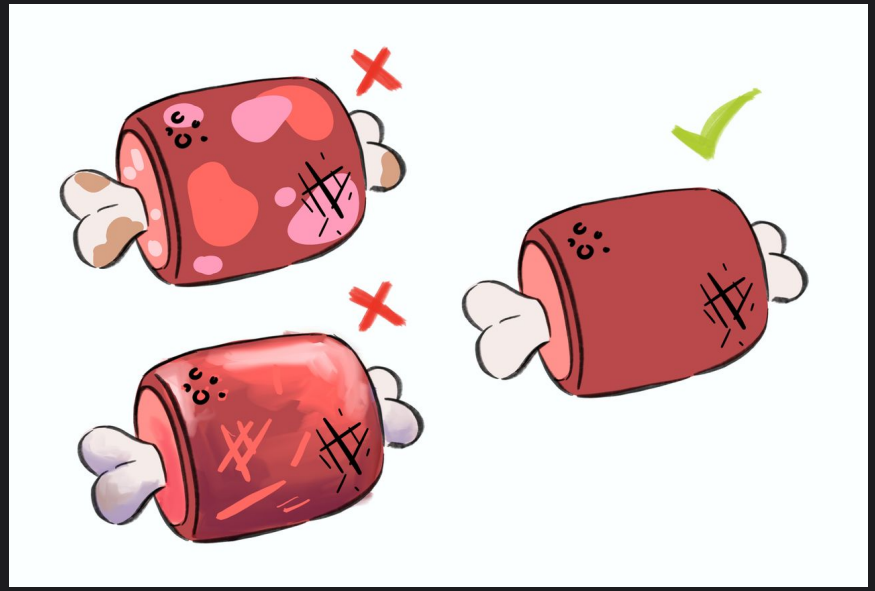


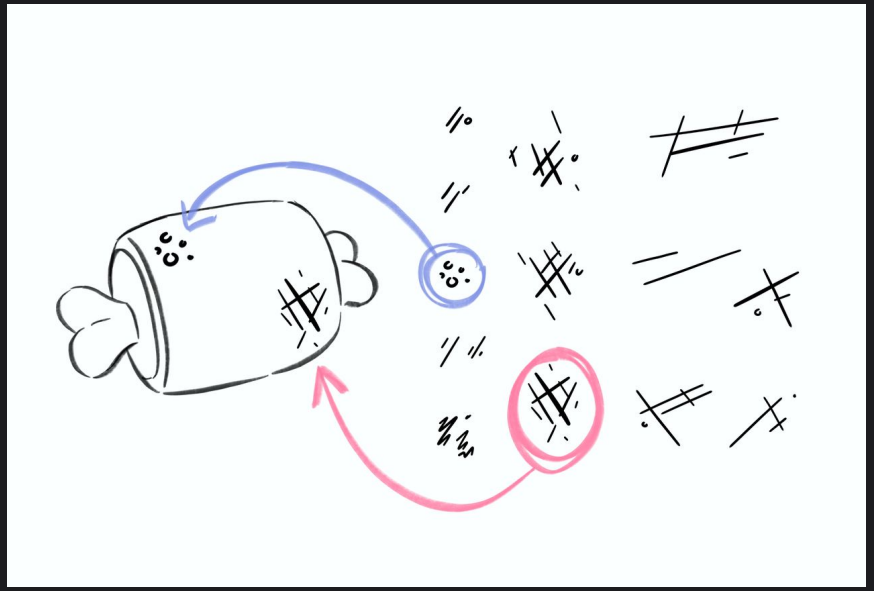
Scratch Detail Atlas



Flat Color Atlas

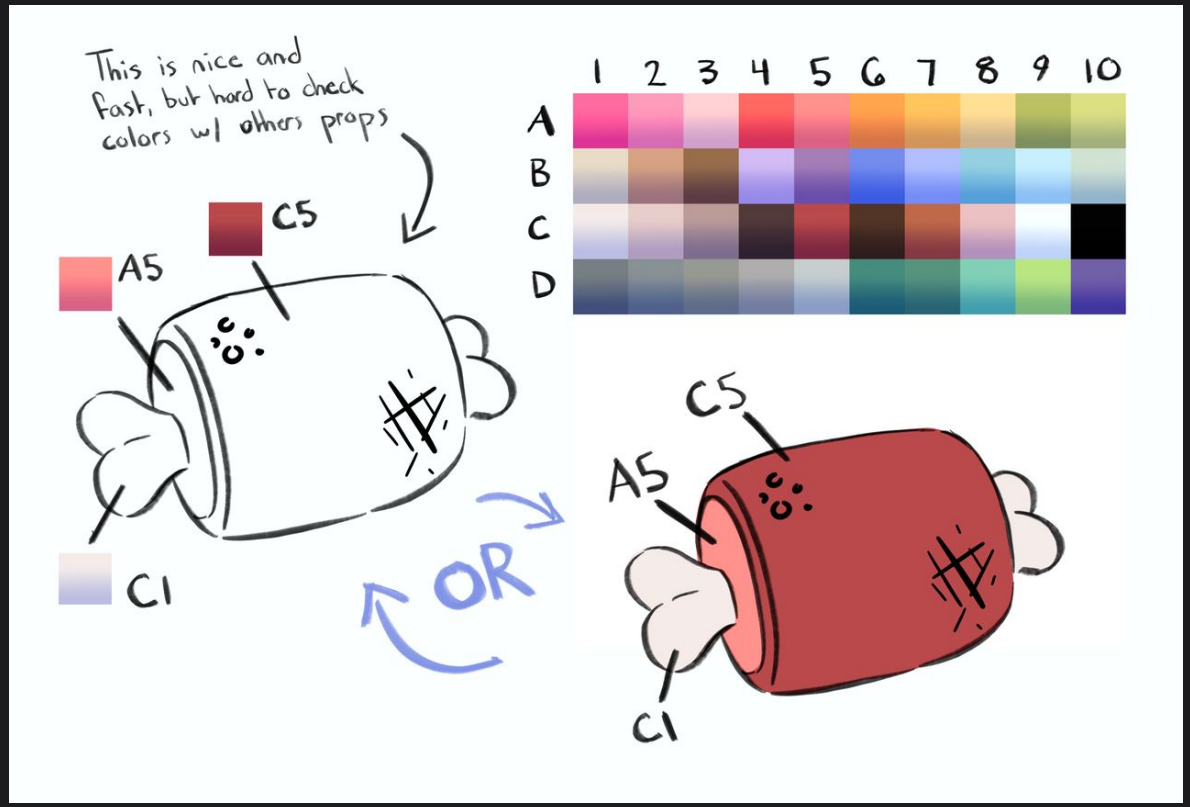
A Basic Understanding of How Assets Will be Made/Used





So when concepting props, they need to adhere to the system of flat colors and the existing available scratch detail map

A Basic Understanding of How Assets Will be Made/Used



Labeling in a clear way for 3D modelers to use is also very important

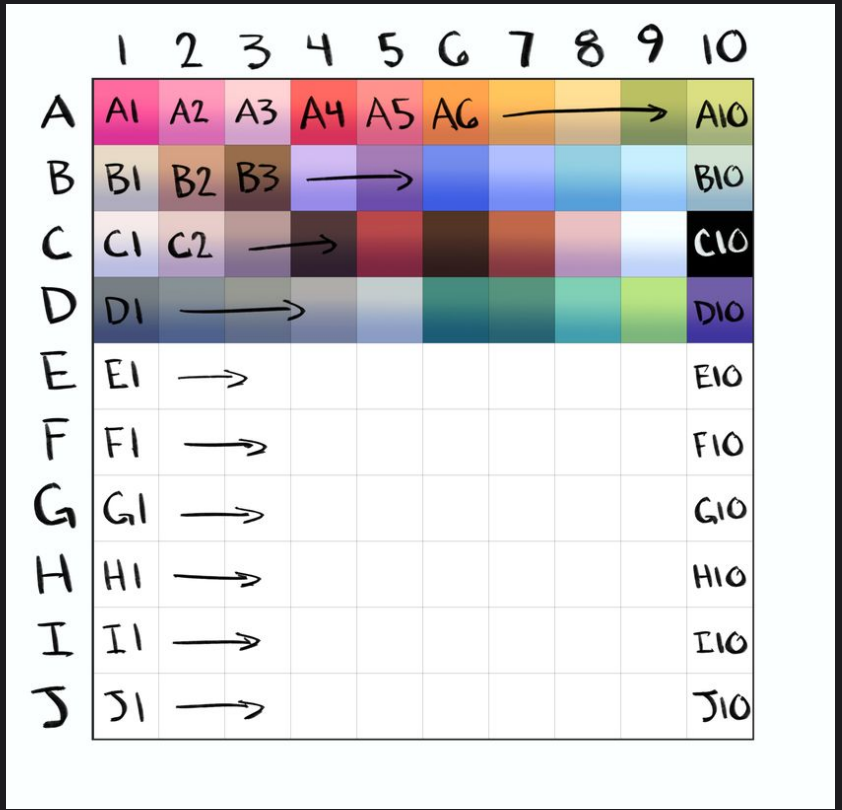
Everything ALWAYS Adheres to the Color Palette

We have a set color palette

By strictly keeping to our palette, it will create a nice cohesive style of colors which will help the game look themed. On one image, we can fit 100 colors, we can add new colors as we go and as they are needed. When adding a new color, it needs to be a concepting/art team decision as we don't want to ever add colors that are unnecessary

Here is a labeling system to make it easy to differentiate colors

Labeling with clear letters and numbers that adhere to ford completely eliminates any possible confusion, and will prevent 3D modelers ever having to color pick or guess what a prop's color should be



Concepts that 3D Modelers Can Work From

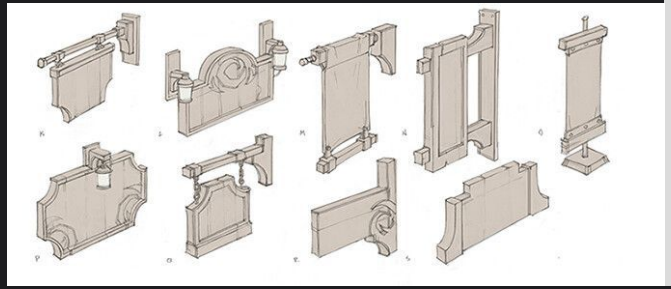
How concepts are drawn also matters a lot in terms of their usability

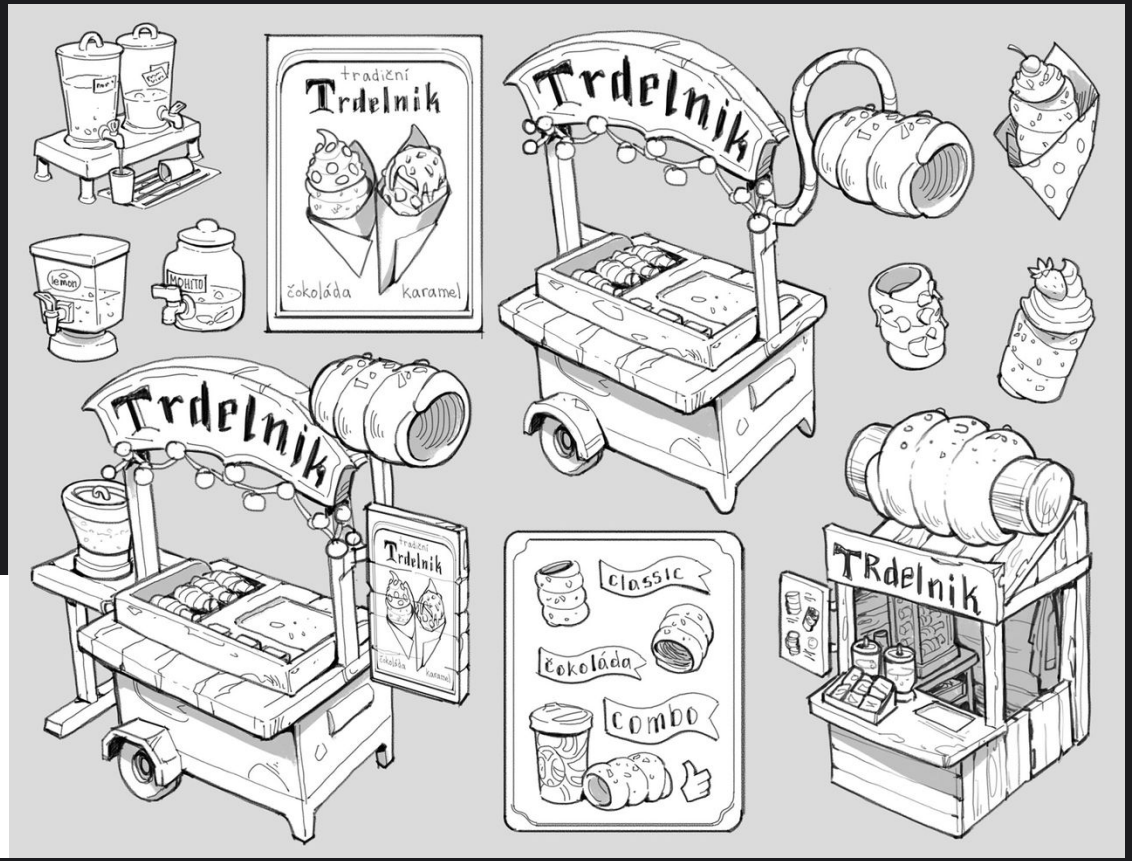
The image to the side is a wonderful drawing, but it would be difficult to make these assets in 3D space without having to rethink a lot of the shape. We want concepts as straightforward and accurate to how they will look in-game as possible

Concepts that 3D Modelers Can Work From

This concept to the side shows the 3D form of objects particularly well. I could take any of these props/stands and easily make accurate 3D models without any further clarification or concepts.

It is even better to draw things from the isometric view that the game would have as that would be the final way that all objects and props will be viewed like below





We Might Throw Away a Lot of Your Concepts (Sorry in Advance!)

It happens all the time

At the studio I work at, we threw away fully completed 3D models because the game's direction took a turn and they weren't needed anymore. You will most likely have concepts that never get made into game assets, concepts that will need to be heavily edited/changed numerous times, and concepts that simply get lost in the noise of game development.

It is never a reflection on your skills, it is just that concepts are at their core, ideas. Ideas in development get thrown away and changed allllllll the time. It is how we figure out what works best and what our game actually is when it exists.

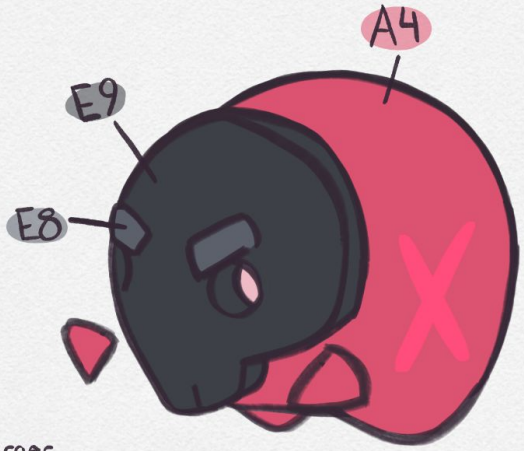
I just wanted to include this section, so when these things happen it doesn't come as a surprise. You are an idea person first and foremost, so don't sweat it if something doesn't make it. You can always draw something new :)

Finalized Concept Examples

Charger Enemy Variants

	1	2	3	4	5	6	7	8	9	10
A	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
B	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
C	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
D	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
							E7	E8	E9	E10

X = Spot to hurt enemy



SM_BaseCharger

Tall Evergreens

Tree UVs should be small in the square * use the gradient for a larger variety of colors

SM_Tall Evergreen_01

Should have 2 materials

One for foliage parts

One for wood

X

X

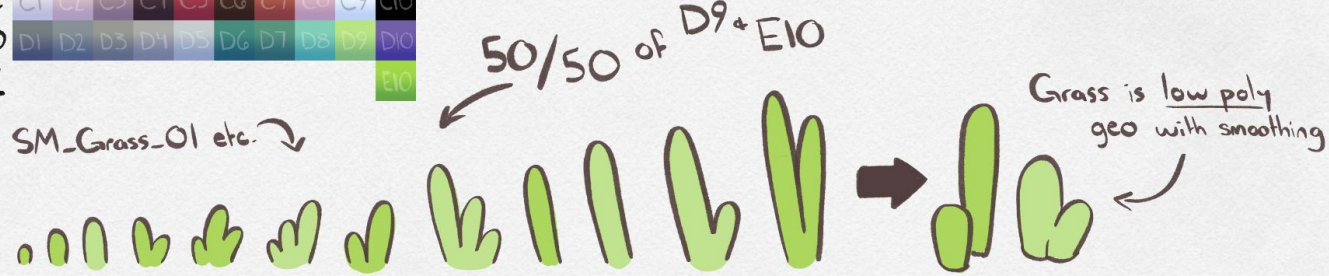
SM_Tall Evergreen_05

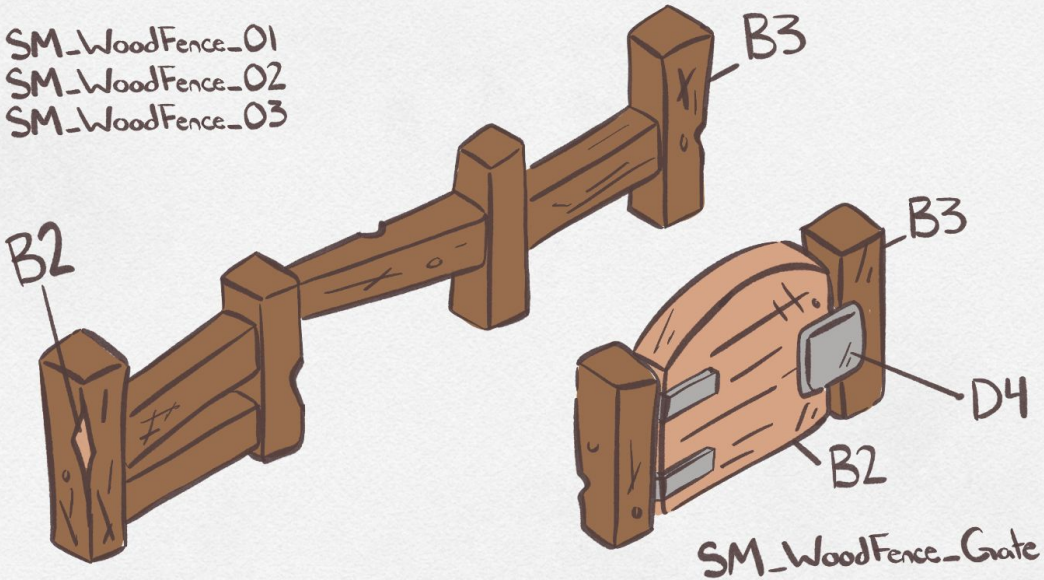
SM_Tall Evergreen_04

SM_Tall Evergreen_03

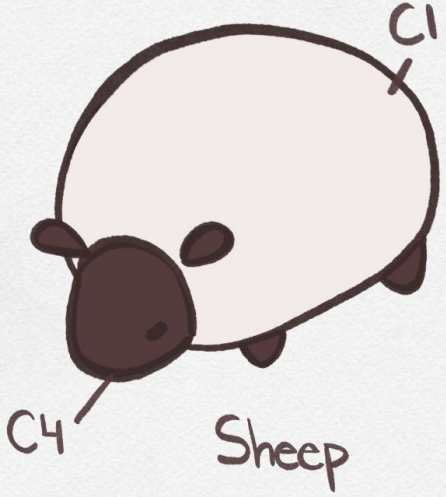
SM_Tall Evergreen_02

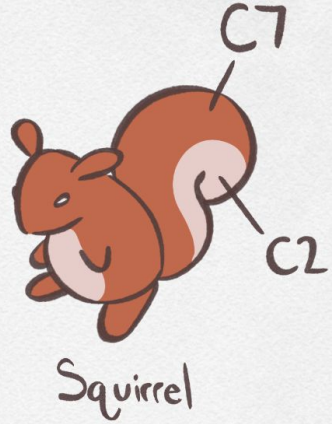
Farm Field 02 Sheet

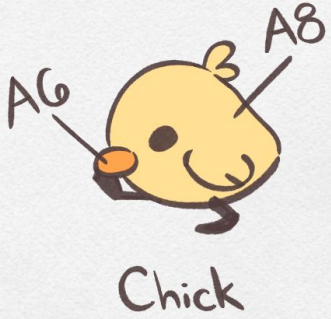


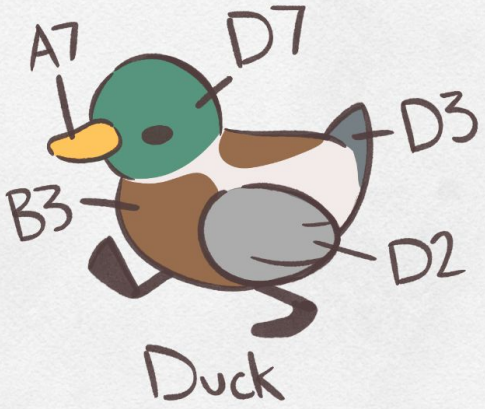


Farm Theme Animals









3D Modeling

Overview & Tech Specs

Normal Space (If ever needed): **Open GL**

Unity Rendering Pipeline: **URP**

Scale Guide: **GibbaGibbaStart Maya Scene, use Gibba player character as main reference**

Poly Counts: **Props generally Less than or equal to 1k polys**

Naming Convention: **SM -> Static Mesh, ex: SM_MeatChunk**

This is the general workflow for how a 3D asset will be made for the game from start to finish. This workflow is to ensure consistency across the board and also to ensure that we make our game as efficient and optimized as possible.

I uploaded an example assets that is completed that you can download and look at using this link. There should be both an OBJ, and an FBX. If you need a different format or have questions free to ping me!

SM_MeatChunk.fbx

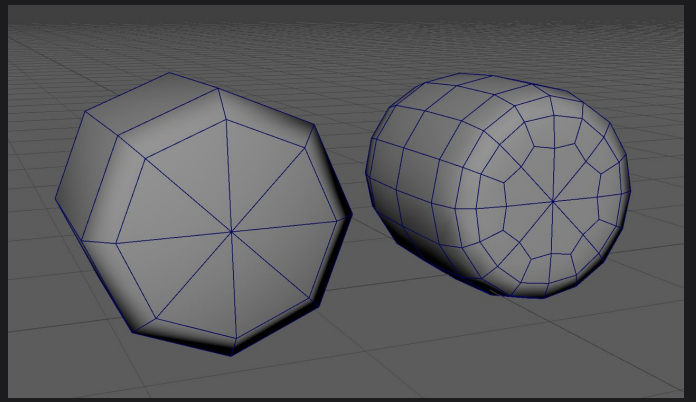
SM_MeatChunk.obj

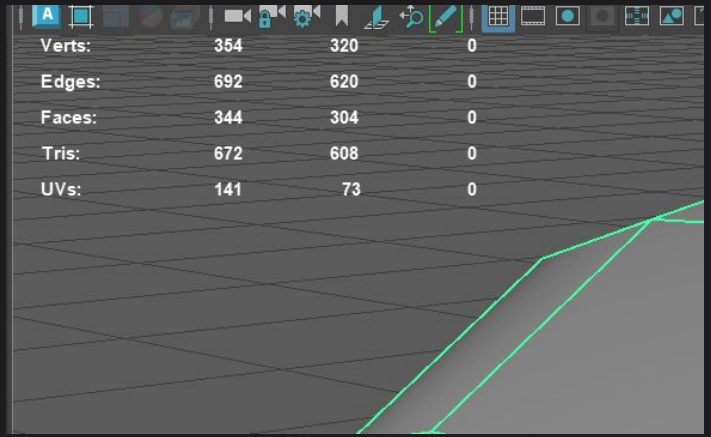
Modeling

Our game is centered on being made for the Switch, so everything should be modeled as low poly as possible. Though there is a catch, there must also be a balance between too low poly to the point it the edges are too sharp.

In general, you should try your best to keep props under or around 1k polys, but depending on the object in some cases, it can go higher because of the shape complexity

Left is too low, the right object is just right!





The right meat chunk is smooth but the entire object is only 304 faces total.

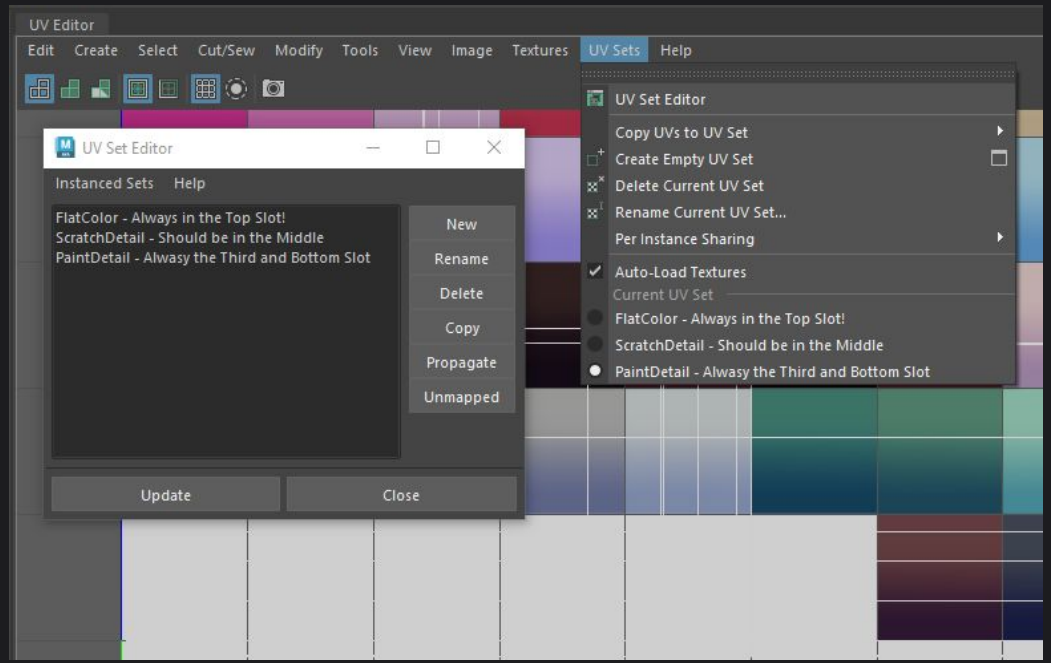
UV Sets

IMPORTANT: UV sets have to be named EXACTLY as above (capitalization matters!) otherwise when you combine meshes, it will make a new UV set for every different naming style and mess up your model :(

When working with UV Sets, you should go ahead and create all your UV Sets first and then begin working on them from the bottom to the top, as you will need to constantly use the top UV set to preview textures

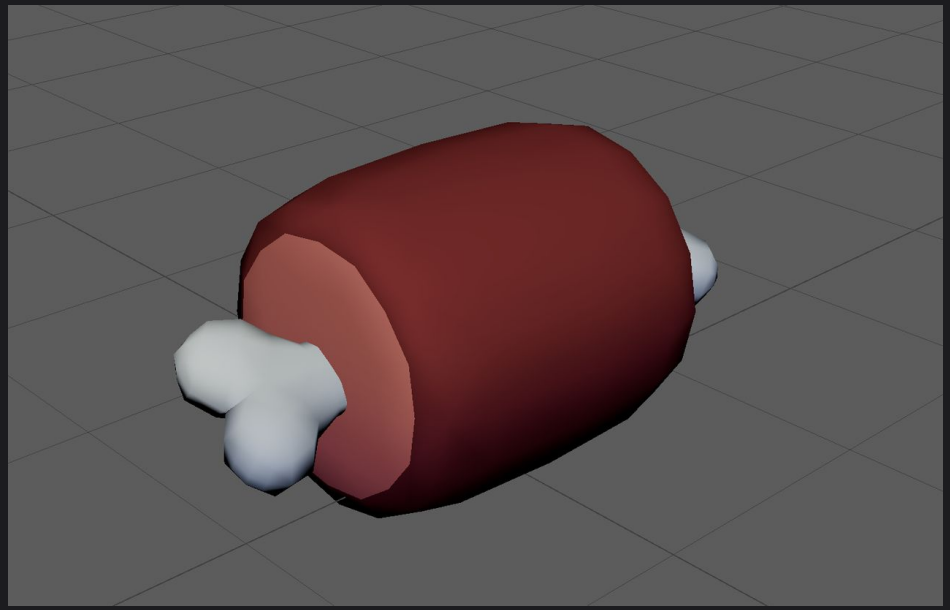
Every Object will have 3 UV Sets:

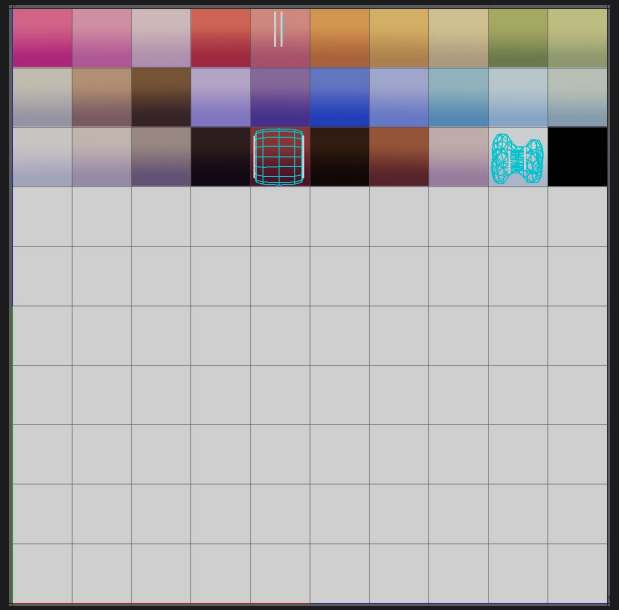
1. FlatColor
2. ScratchDetail
3. PaintDetail



1st UV Set - FlatColor

The idea is that the top UV set, FlatColor is only used to set the main colors of the object. For the example prop, the Meat Chunk, UV parts are used to make the meat red, the meat sides pinkish, and the bones white. This is done by creating separate UV shells for each part and then resizing them to fill the square of the color.

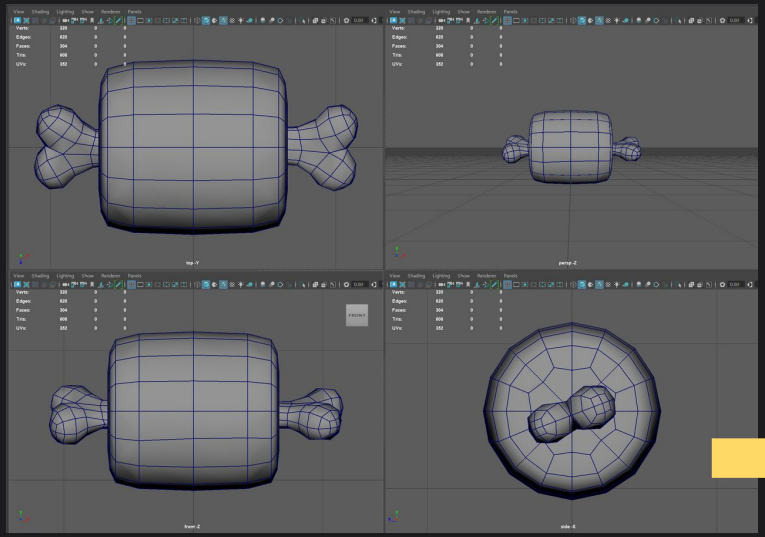


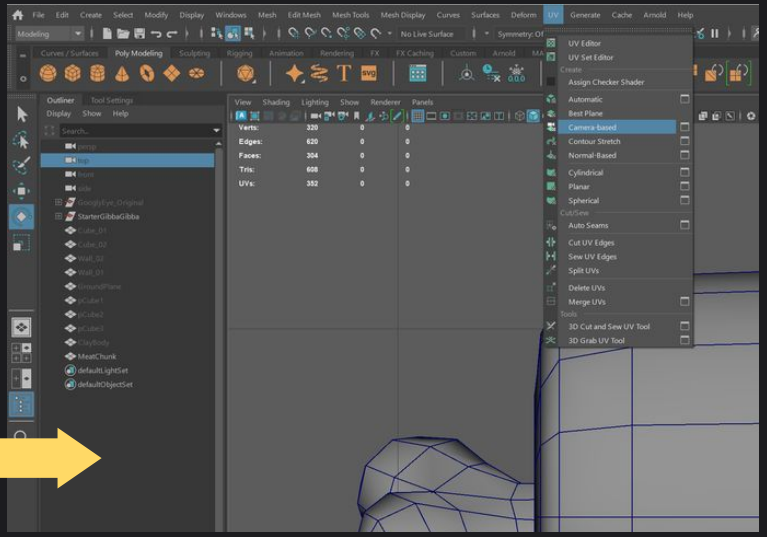


1st UV Set - FlatColor

In order to UV for this set you must view the "front" of the object using spacebar so that it is a perfect head on view and then go UV –> Camera-Based UV

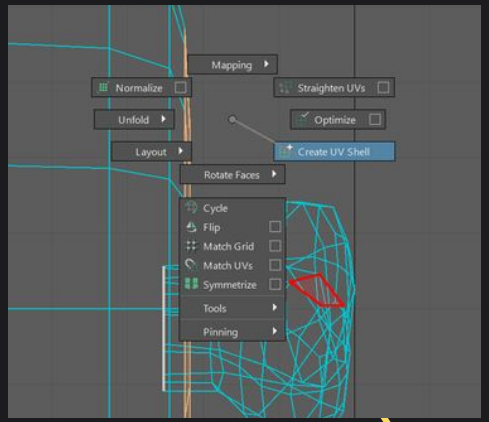
You have to use camera based from the front view so that the gradient will be smooth from up to down the model and there won't be any breaks in the model sides either

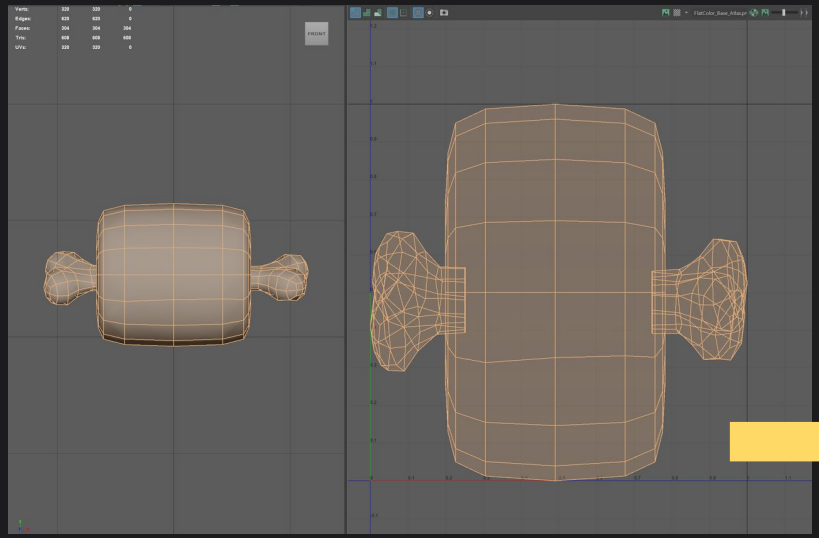


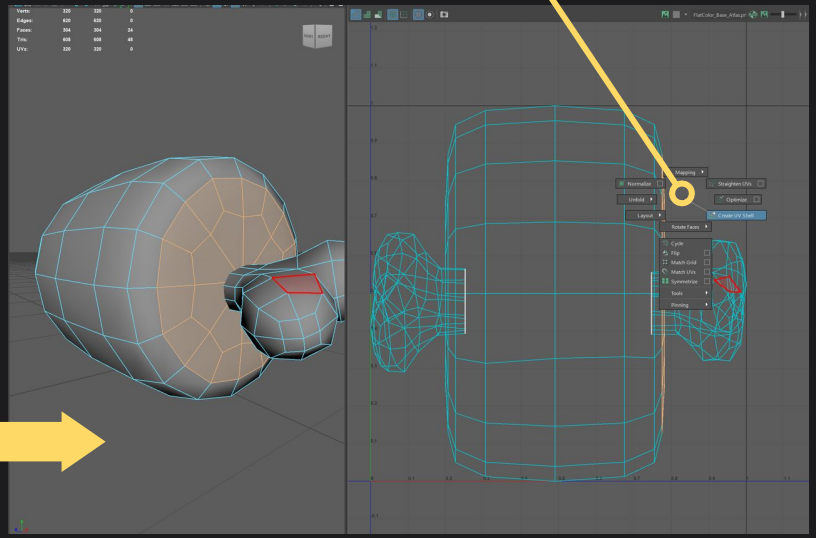


1st UV Set - FlatColor

Now you can select face and right click in the UV editor window to "make a UV shell" to easily separate out different colored parts.



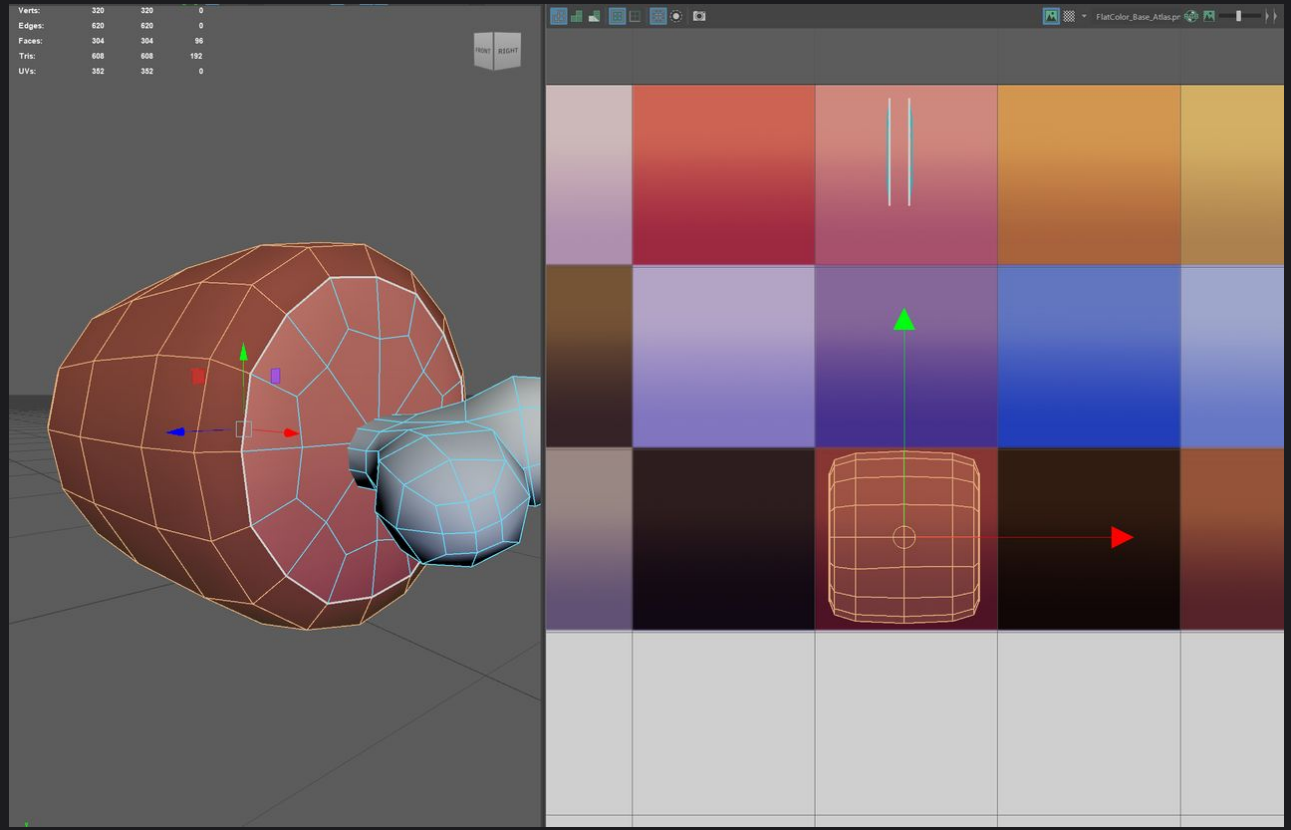




1st UV Set - FlatColor

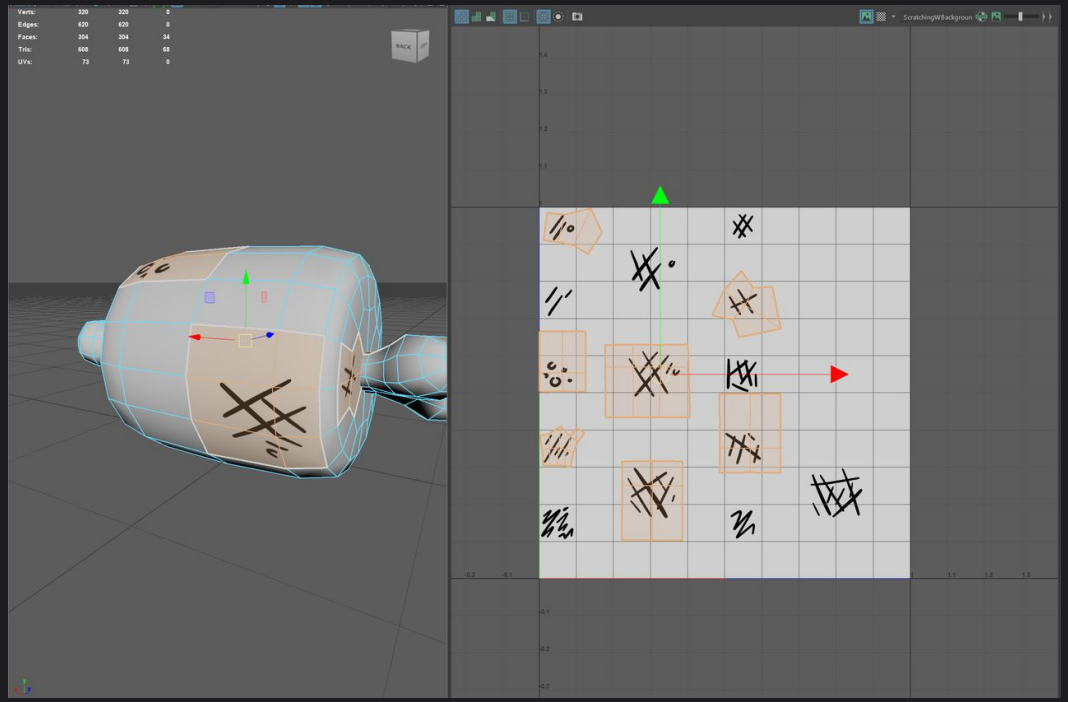
Then without unfolding or changing the UV in anyway, you simply drag it out and place it in the square and check the gradient

Since every color has a gradient, the UV shell size matters in the square, always make a test lambert material and visually check the gradient on the model.

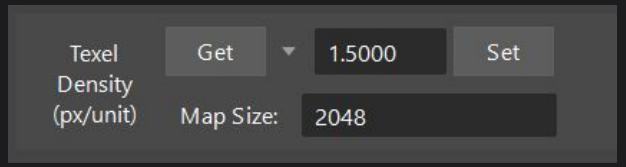


2nd UV Set - ScratchDetail

Now that we did the flat color detail, you can copy it to a dummy UV set, and you can move onto the Scratch Detail UV set. This map allows us to reuse an atlas of various scratches across multiple assets.



You can just do a full unwrap, copy it, and then use it as a starting point choosing some areas, set the scale for the correct texel density, and then separating them out and placing them in a way for how the scratch should look on the asset. Once you're done, delete any left over UVs. Now you can copy this UV to the second/middle slot.

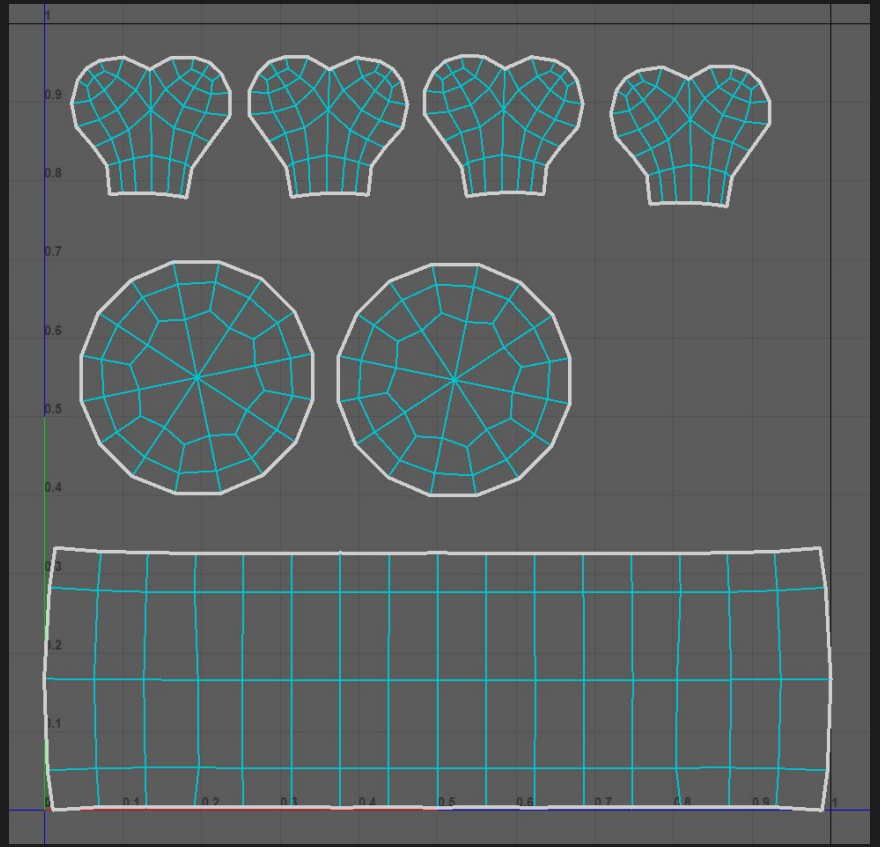


3rd UV Set - PaintDetail

The first UV Set you will do is after you make all three which will be blank, is Paint Detail. While working on UV Sets, you can work on your UVs in the top spot to visually see the texture and then simply UV Set –> Copy UVS to UV Set later (It does overwrite and existing UVs there though).

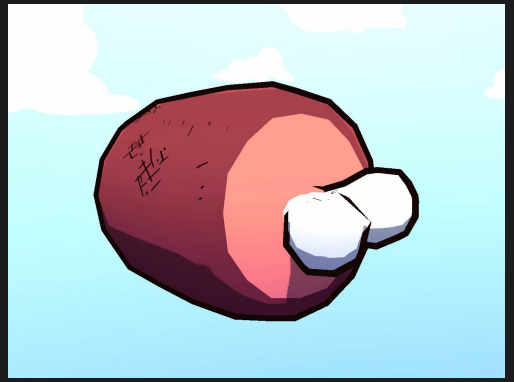
Paint Detail is a UV unwrap approach that you are probably used to, make your cuts and make it a full pelt where you can paint it as if we were doing a hand painting pipeline.

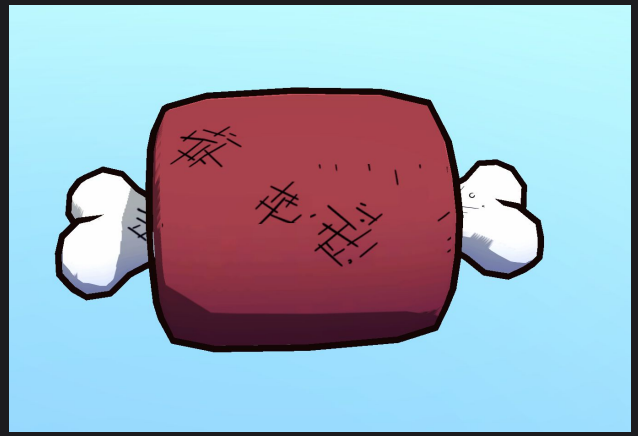
This UV Set is for any details that we can't do using the flat color system, or doing color through UV islands on a texture. We don't use this method often though as it requires a new custom material for that particular object. This could also theoretically allow for us to easily applied a universal tileable texture if ever needed as well (so unwrap with the best practices in mind!)

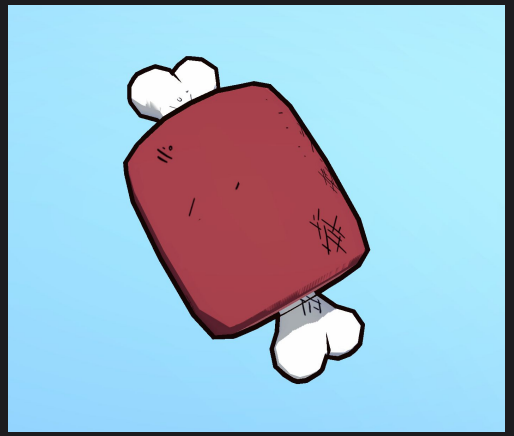


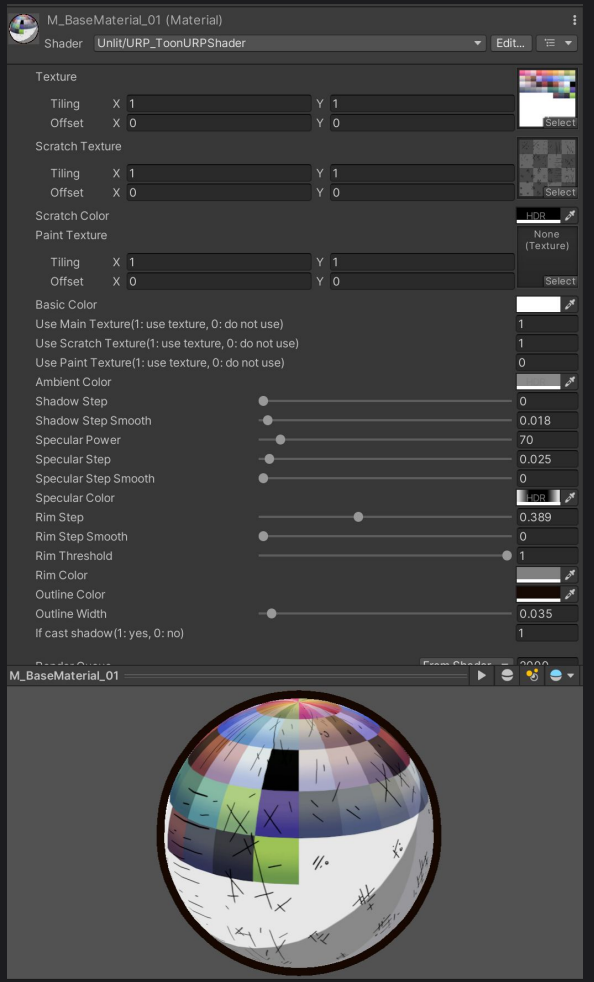
Final Result

Then in engine, the UV sets are combined and a colored optimized object is the final result!









Example/Resulting Assets from the Team!

The WaterMill is an example of using the PaintDetail UV Set, in this instance the roof tiles are hand painted

Save for the WaterMill, every object here is referencing the same material, this scene would require three textures (FlatColor, ScratchDetail, and the custom WaterMill Texture), and only two materials total need to be loaded in

Save for the Googly Eye Special Material, everything here is using the same material and textures!

All these trees are using a variation of our main material that has a shader attached to make them sway. We have versions with/without the gradient in the texture, scratch detail or not as well as solid color options to allow for flexibility during development. Sadly these are all unique materials, but at the end of development, all we need to do is consolidate unique load ins by deciding material count against unique model UV changes and optimize our game according to where we sit with our performance goals on our target device

Thanks!