**Effects Part 1-4 Terms and Hotkeys/Tools**

As you’re working through these tutorials, focus less on the specifics of how each individual effects system works, and more on how effects systems work in general. Each system is unique and has their own quirks, making each one a new challenge; effects artists need to know how to quickly learn and exploit new systems at their disposal. However, there are certain things shared by most programs, and those are detailed here.

**Effects**

* **Effects/Efx/Fx** - A catch-all term describing the effects pipeline, which consists of everything that falls outside of the usual animation pipeline. Different from “Visual Effects”, which are effects created in reality.
* **Simulation** - A piece of software that attempts to calculate how an object would act in given circumstances. Useful for dealing with lots of objects that would be frustrating to deal with manually (eg. water, crowds, marbles).
* **Deforming** – Any object that changes its shape internally is a “deforming” object. Can also be called a “Soft Body”.
* **Soft Body Dynamics** - A type of simulation involving one or more “soft body” or deforming objects. For example, cloth.
* **Hard Body Dynamics** - A type of simulation involving one more more “hard body” or non-deforming objects. For example, dominoes.

**nCloth**

* **nCloth –** One of Maya’s internal simulation systems for dealing with Soft Body Dynamics.
* **Solver** - A node that stores all of the global calculations for a simulation. In nCloth, this is called the nucleus node.
* **Constraint** - A constraint is a way of having certain attributes of an object be controlled by another object, or by a given value. For example, you could constrain a point on a piece of cloth not to move.
* **Passive Collider** - An object in a simulation that is not affected by the simulation, but will be collided with.
* **Preset** – A pre-built series of attributes for a simulation or object in a simulation. For example, a preset for cloth could be “linen”, or a preset for a leaf could be “maple”.
* **Field** – A global effect, driven by the solver, that affects all the objects in the simulation.
* **Evaluation** – An evaluation is what comes out of the solver; it is a result of a simulation.
* **Cache** – A cached is a saved evaluation that is generated by the solver. Caching an evaluation is the process of making a cache from an evaluation.

 **Bullet**

* **Bullet –** One of Maya’s internal simulation systems for dealing with Hard Body Dynamics.
* **Collider** - A collider is a shape, attached to an object, that the simulation uses to calculate how the object moves.
* **Collision Detection** – The process where two objects with colliders are unable to pass through one another.
* **Baking** – Once a simulation has been evaluated, the simulation can be baked into keys. Baking is the process of transforming an evaluated solver into key frames on an object.
* **Scripts** – Short pieces of code used to automate processes in Maya, often used in rigging and effects. Scripting is the process of making these scripts.

**biFrost**

* **biFrost –** One of Maya’s internal systems for dealing with Fluid dynamics.
* **Plugin** – A piece of additional software that can be “plugged-in” to Maya to add additional functionality.
* **Emitter** - An object in a simulation that “emits” or creates objects. Can emit objects like water.
* **Particle** - A point object. These can collide with each other, have color, and render out in a variety of different ways.
* **Voxel** – A 3-D Pixel; a blob of 3-dimensional space.
* **Scratch Cache** – A special version of a cache used by biFrost to

**XGen**

* **XGen –** One of Maya’s internal simulation systems for dealing with hair, fur, and other similar instanced simulations.
* **Instancing** – An Instance is a single version of an object; many instances of an object can be contained within a scene. Instancing is the process of making multiple instances.