Graphics Coordinates and the Pipeline

Mike Bailey
mjb@cs.oregonstate.edu

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The Basic Computer Graphics Pipeline

MC → WC → EC → EC → CC → NDC → SC → SC

Model Transform → View Transform → Per-vertex Lighting → Projection Transform → Homogeneous Division

Viewport Transform

Fragment Processing, Texturing, Per-fragment Lighting

Rasterization

Framebuffer

Raster Ops

MC = Model Coordinates
WC = World Coordinates
EC = Eye Coordinates
CC = Clip Coordinates
NDC = Normalized Device Coordinates
SC = Screen Coordinates

Oregon State University
Computer Graphics
The Shaders’ View of the Basic Computer Graphics Pipeline

- In general, you want to have a vertex and fragment shader as a minimum.

- A missing stage is OK. The output from one stage becomes the input of the next stage that is there.

- The last stage before the fragment shader feeds its output variables into the rasterizer. The interpolated values then go to the fragment shaders.

[Diagram of the computer graphics pipeline with fixed function and programmable stages]

= Fixed Function

= Programmable