Graphics Coordinates and Pipeline

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The Basic Computer Graphics Pipeline

MC \downarrow

Model Transform \rightarrow WC

View Transform \rightarrow EC

Per-vertex Lighting \rightarrow EC

Projection Transform \rightarrow CC

Homogeneous Division \rightarrow NDC

Viewport Transform \rightarrow SC

Fragment Processing, Texturing, Per-fragment Lighting \rightarrow SC

Rasterization \leftarrow SC

Framebuffer \leftarrow SC

Raster Ops \leftarrow SC

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

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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.

= Fixed Function

= Programmable

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