

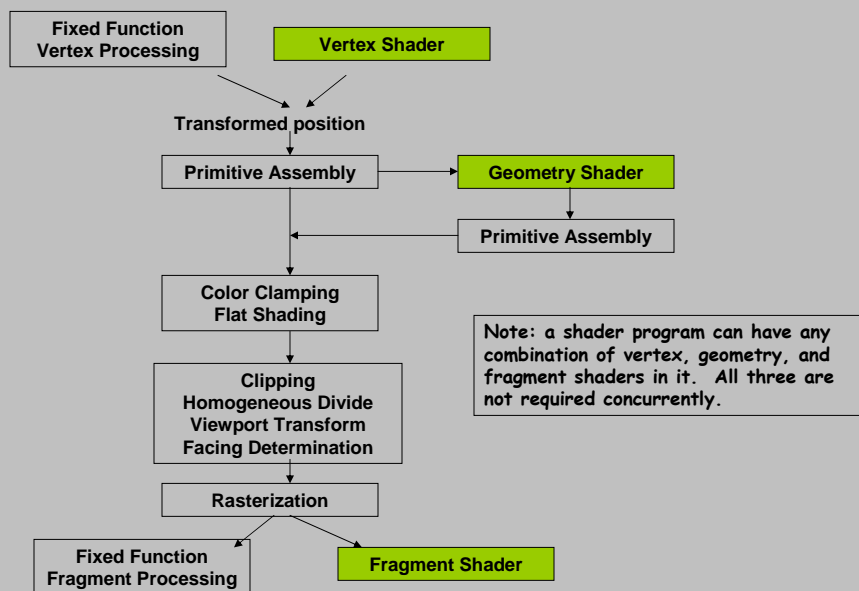
Cool New Features in GLSL

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The Geometry Shader:



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New GLSL Operations

- Integer bitwise operations: `<<` `>>` `%` `&` `|` `^` `~`
- `T truncate(T x);` -- integer closest to x whose abs is not larger than abs(x)
- `T round(T x);` -- integer closest to x
- Integer versions of: abs, clamp, min, max, sign

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New Texture Routines

Texture arrays:

```
vec4 rgba = texture2DArray( sampler2DArray sa, vec3 stp );
```

Textures that return integer values:

```
ivec4 irgba = texture2D( isampler2D is, float st );
```

Textures whose indices are integers (=“texture fetching”):

```
vec4 rgba = texelFetch2D( sampler2D s, ivec2 ist, int lod );
```

Querying texture size (useful for texture fetching):

```
ivec2 sizexy = textureSize2D( sampler2D s, int lod );
```

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New Keywords

New application #ifdef:

- #ifdef GL_EXT_gpu_shader4

New shader variable modifiers:

- noperspective -- causes interpolation to be in screen space, not perspective correct
- flat -- causes no interpolation to take place
- centroid

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