Chapter 11 - Texture Mapping
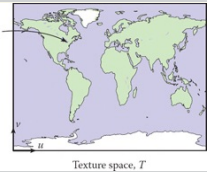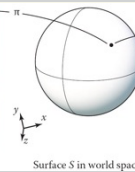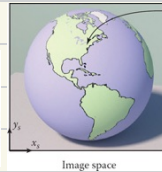
texture mapping - using an image to store surface details

textures - shadows, reflections, illumination, surface shape
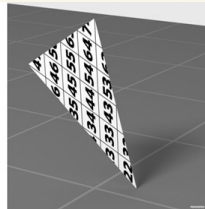
1. Texture Values

$$\phi : S \to T$$
$$: (x, y, z) \mapsto (u, v)$$

Image space   Surface S in world space   Texture space, T

2. Texture Coordinate Functions

2.2. Interpolated Texture Coordinates

2.3. Tiling, Wrapping Modes and Texture Transformations
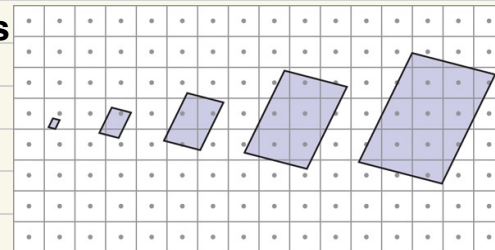
3. Antialiasing Texture Lookups

3.2. Reconstruction

bilinearly interpolated texture:

    express sample point in texel

    average four neighbour values

Upsampling magnification   Downsampling minification

3.3. Mipmapping

sequence of textures containing same image at lower resolution

    base level (0) - original full resolution texture image

    1 level up - downsampling image by factor of 2 in each dimension