Basics

# Vector and Matrix

## Vector

### Dot

### Cross

### Interpolation

## Matrix

### Multiply with vector

as direction, as point.

# Transform

## Translation

## Scale

## Rotation

### Euler rotation

#### Rotate around x axis

#### Rotate around y axis

#### Rotate around z axis

### Quaternion

#### Multipy

#### Dot

#### Interpolation

#### Rotate vector

Rotate around axis by .

#### Matrix

### Euler to quaternion

### Look at

# Render pipeline

## Camera

## Object to World

## World to Camera view

## Camera view to Projection

### Orthographic

#### OpenGL

#### DirectX

### Perspective

#### OpenGL

#### DirectX

## Projection to NDC

## Position in Shader

### Vertex output

### Fragment input