



Computer Science and Games: *Just For Girls!*

Computer Graphics

What Are Raster Graphics?



What Are Vector Graphics?



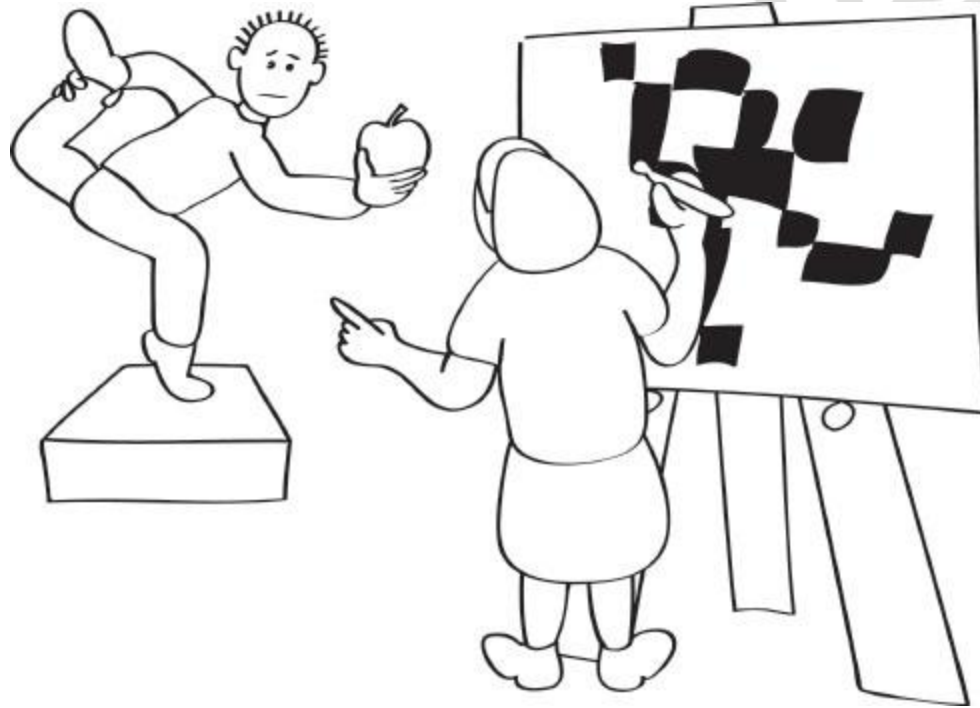
The Difference

Two versions of the same image.

One is a raster image, the other vector.

Image Representation

CS Unplugged Activity: Colour by Numbers



Free Drawing Tools

GIMP

Inkscape



Why Do We Need This?

Concept art

Story boards

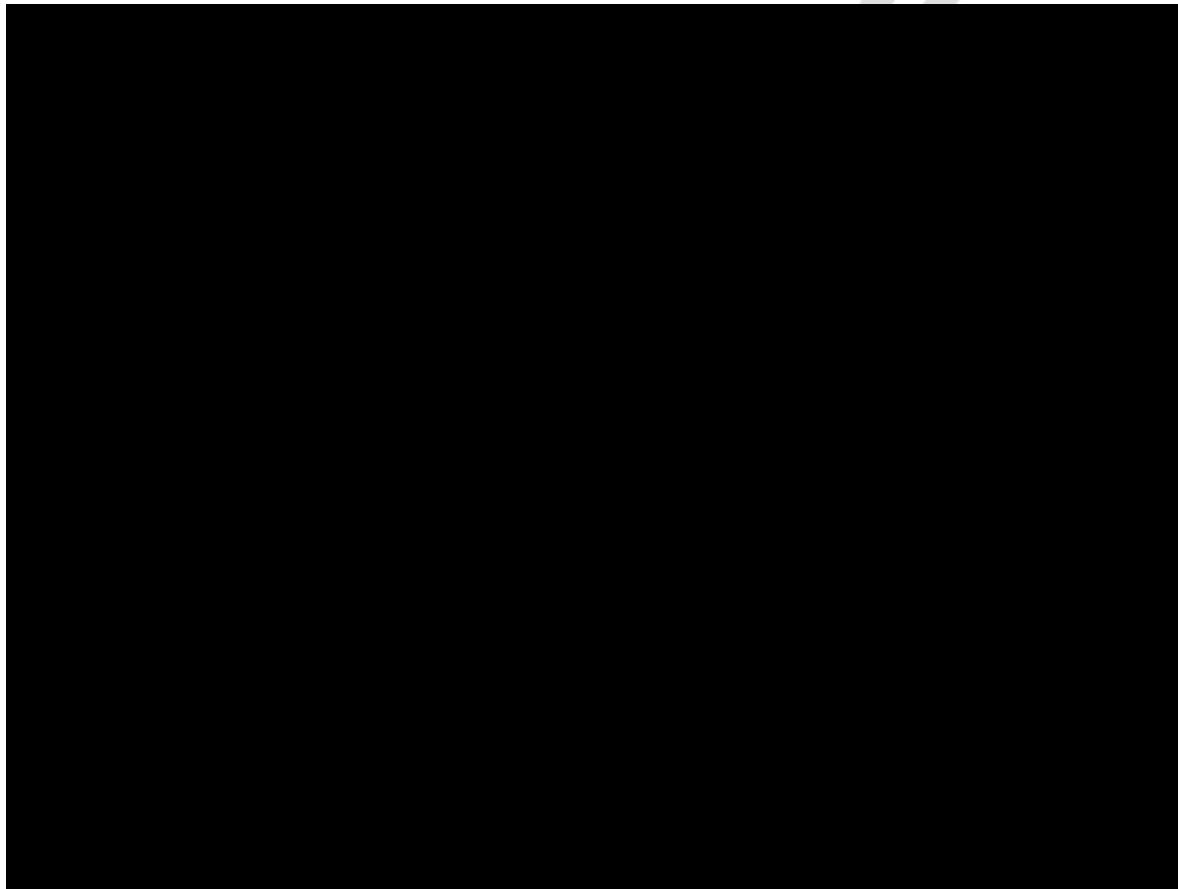
Character design

World design

Promotional Artwork

User Manuals

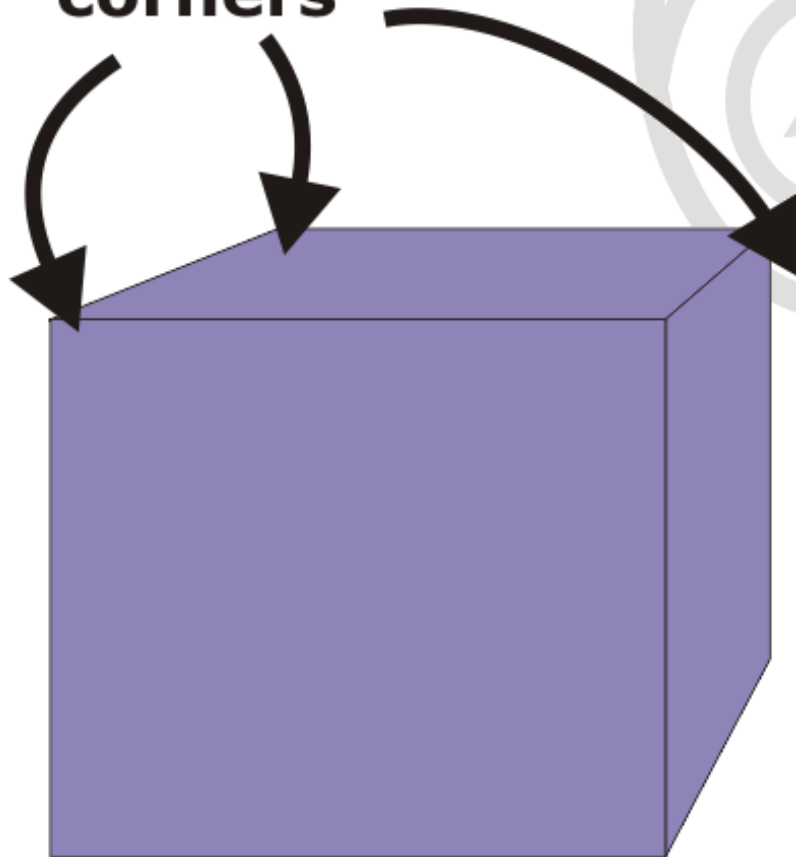
Intro to 3D Graphics



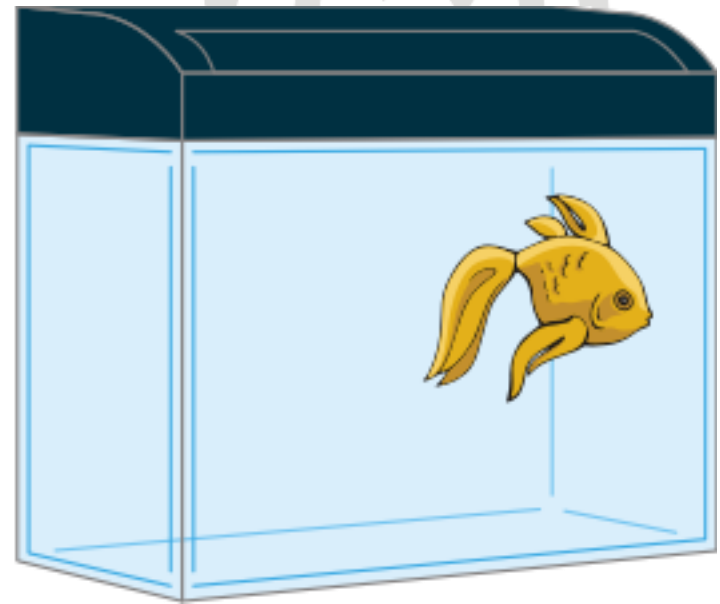
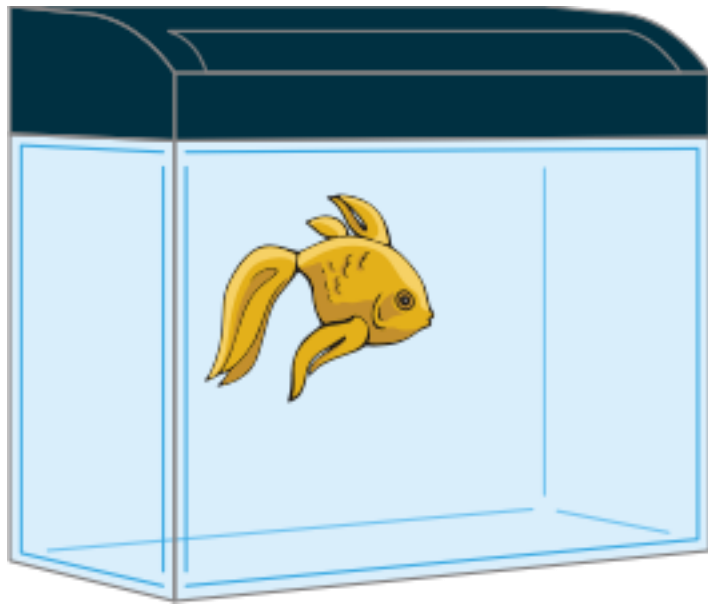
<http://video.google.com/videoplay?docid=-5705559709668742546&q=intro+to+3d+graphics&ei=LxMhSMSPMY6y-wGStNDAAQ>

Mathematical 3D Objects

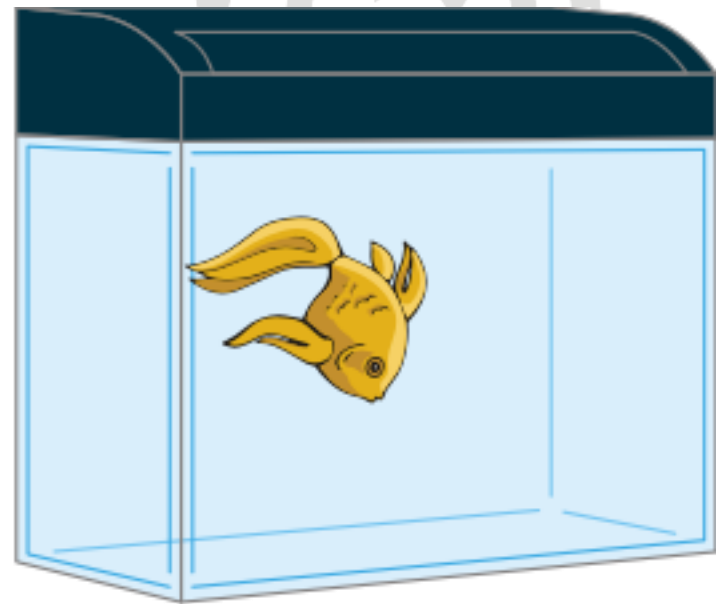
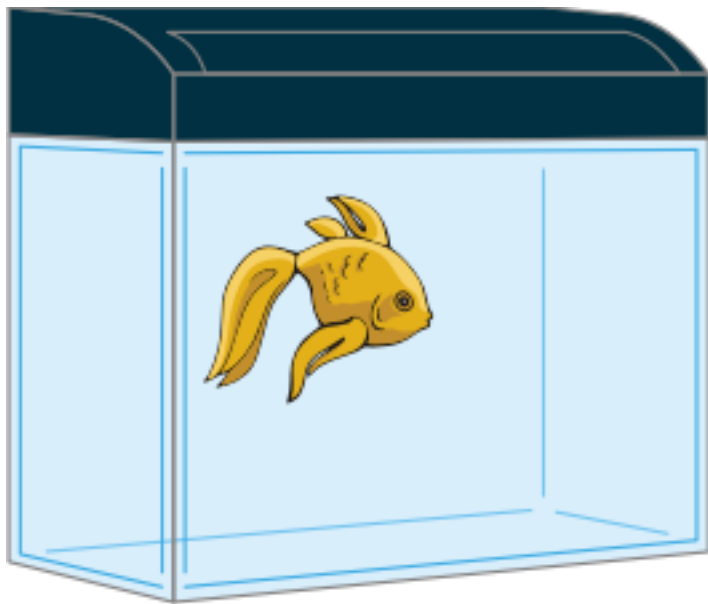
**Describe
corners**



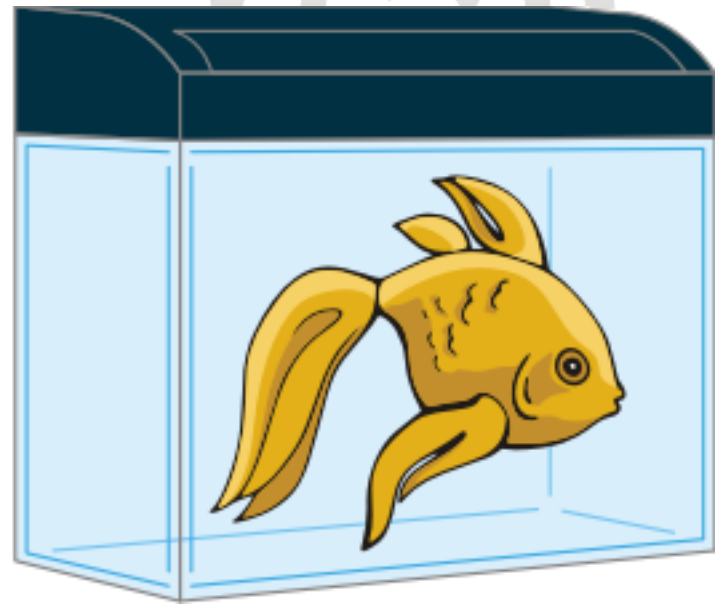
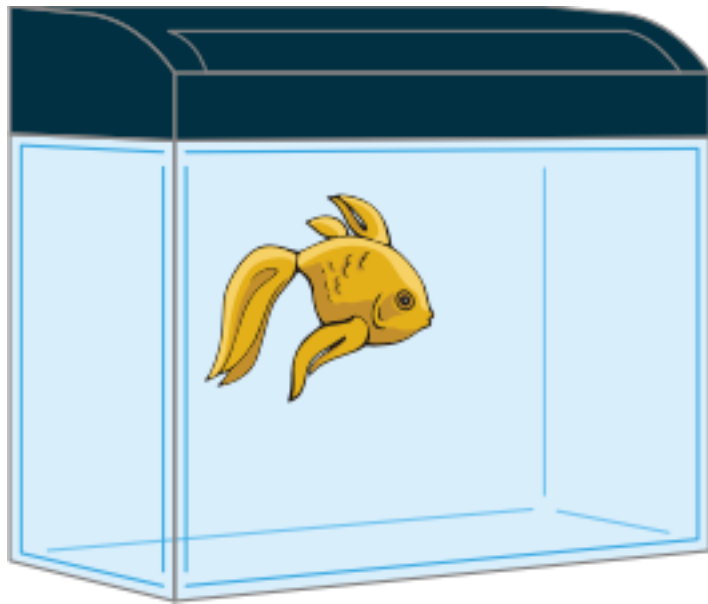
Translation



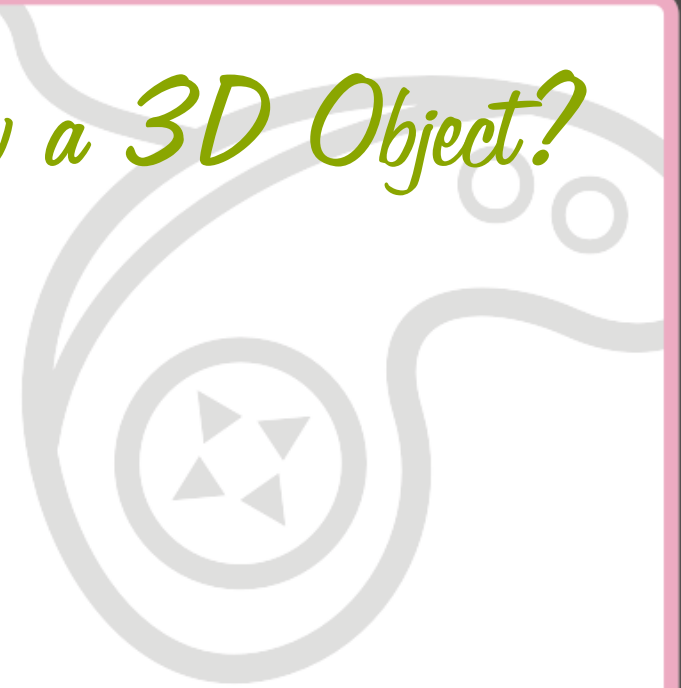
Rotation



Scaling

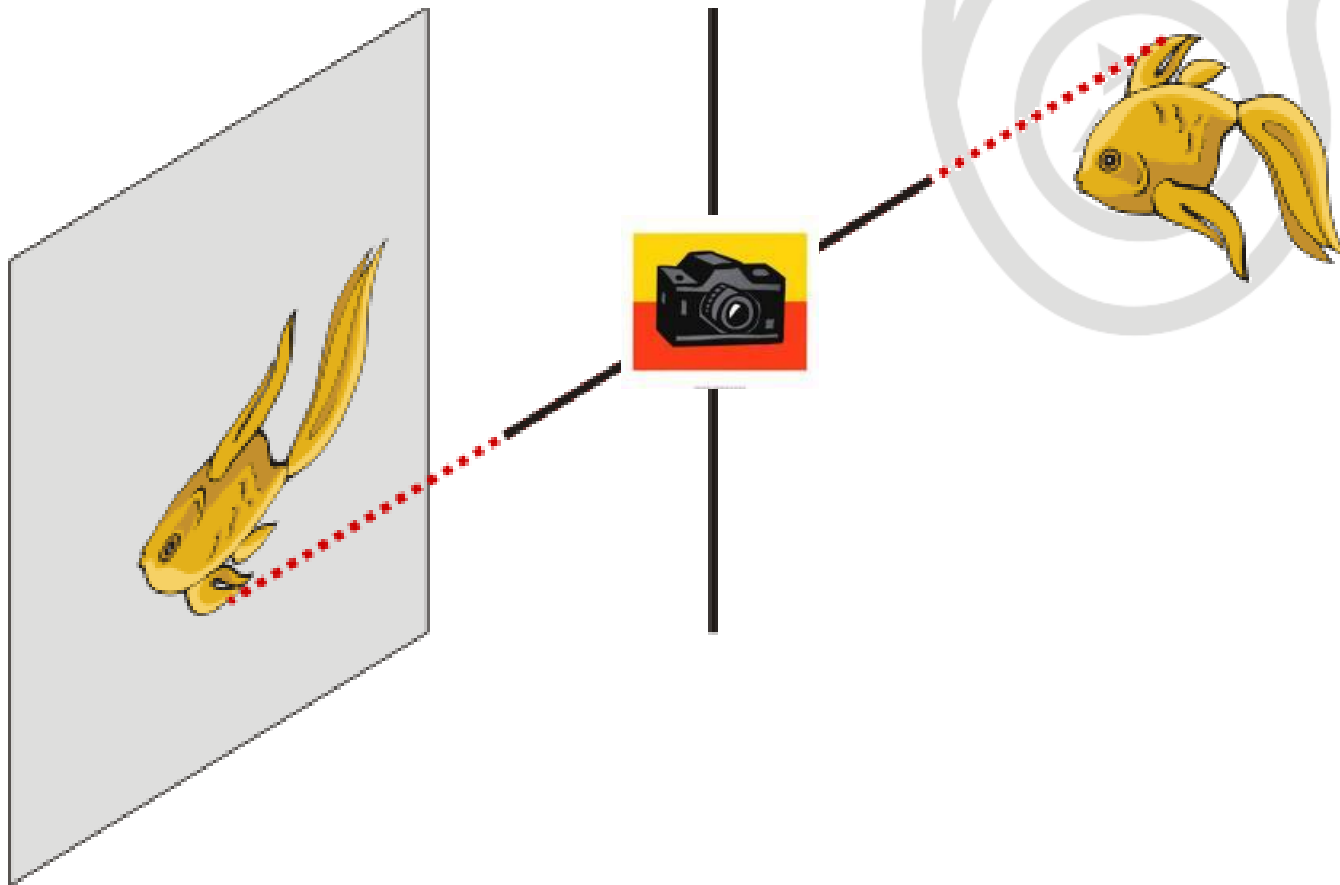


How Can a 2D Screen Show a 3D Object?

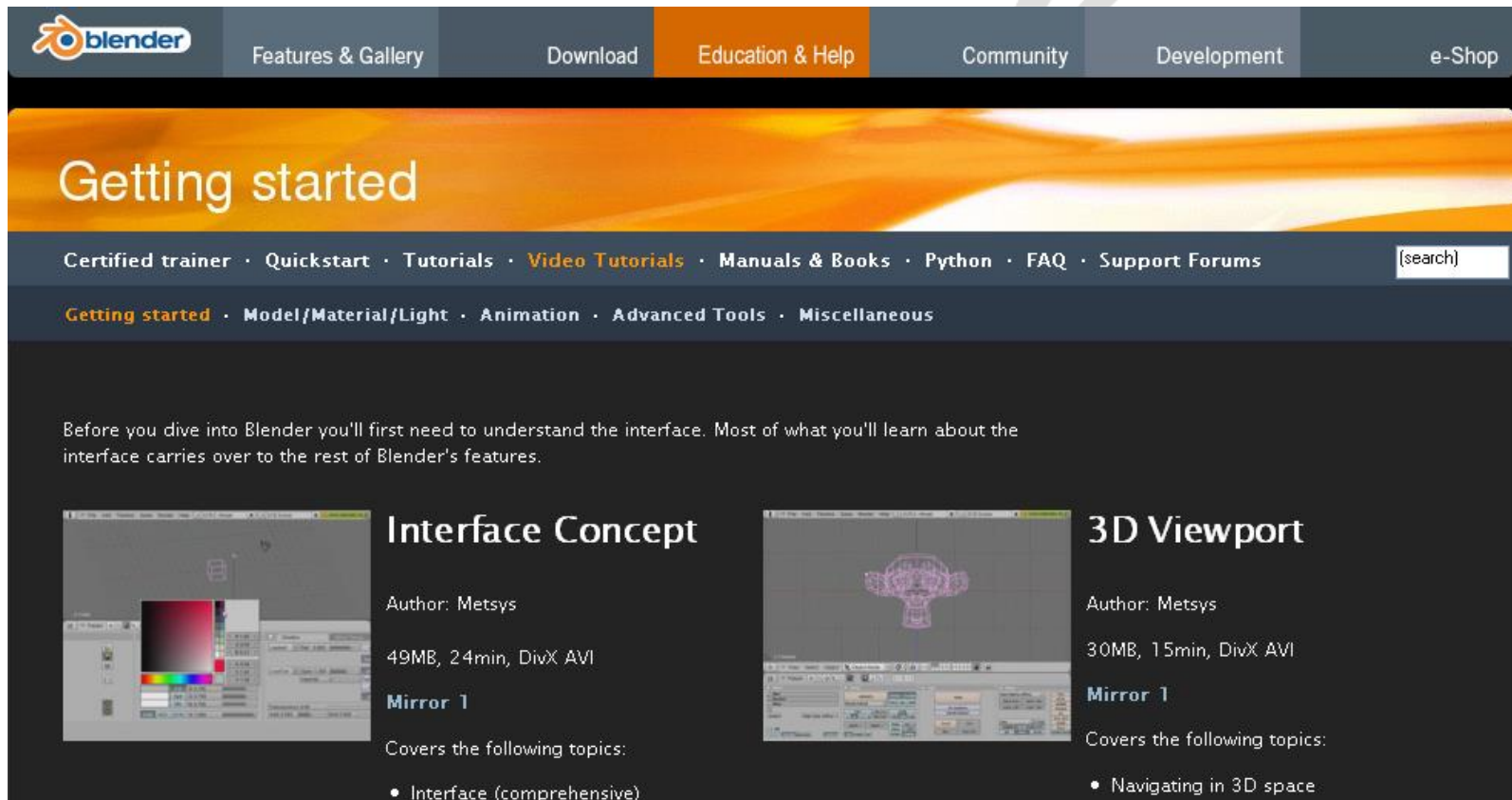


Projection demo!

What's Going On?



Learning Blender

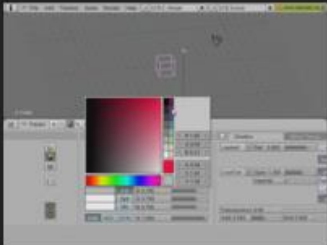


Getting started

Certified trainer · Quickstart · Tutorials · **Video Tutorials** · Manuals & Books · Python · FAQ · Support Forums

Getting started · Model/Material/Light · Animation · Advanced Tools · Miscellaneous

Before you dive into Blender you'll first need to understand the interface. Most of what you'll learn about the interface carries over to the rest of Blender's features.



Interface Concept

Author: Metsys

49MB, 24min, DivX AVI

Mirror 1

Covers the following topics:

- Interface (comprehensive)



3D Viewport

Author: Metsys

30MB, 15min, DivX AVI

Mirror 1

Covers the following topics:

- Navigating in 3D space

<http://www.blender.org/education-help/video-tutorials/getting-started/>

Let's See Blender in Action!

“Big Buck Bunny” (2008)

Movie created entirely by Blender developers and users

Only free, open source tools used

<http://www.bigbuckbunny.org/>



Let's See Blender in Action!

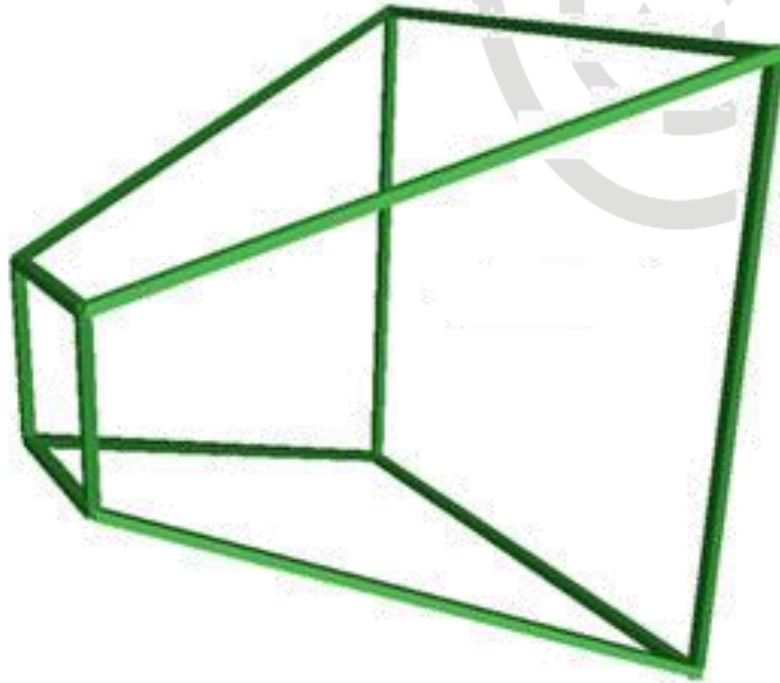
“Caminandes: Gran Dillama” (2013)

<https://youtu.be/Z4C82eyhwgU>



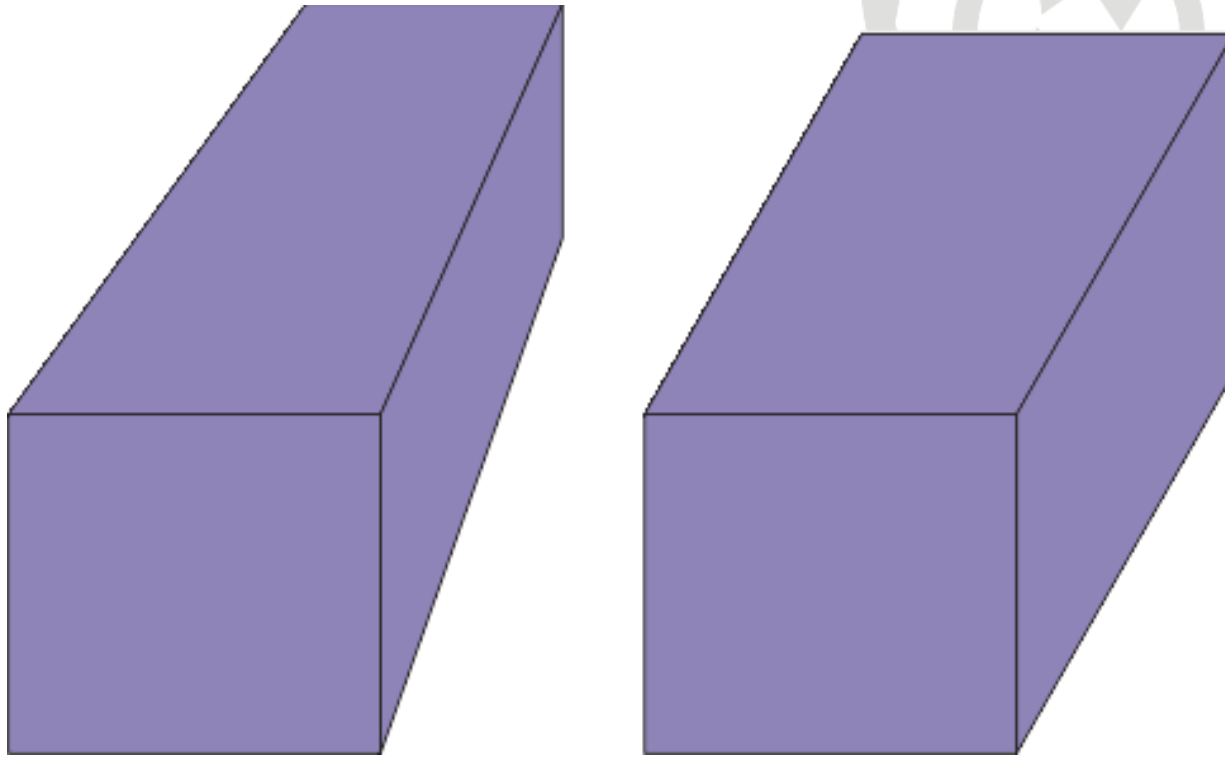
3D Games Have to Deal With:

How much can the camera see?



3D Games Have to Deal With:

Should objects further away look smaller?



3D Games Have to Deal With:

Should objects further away look smaller?

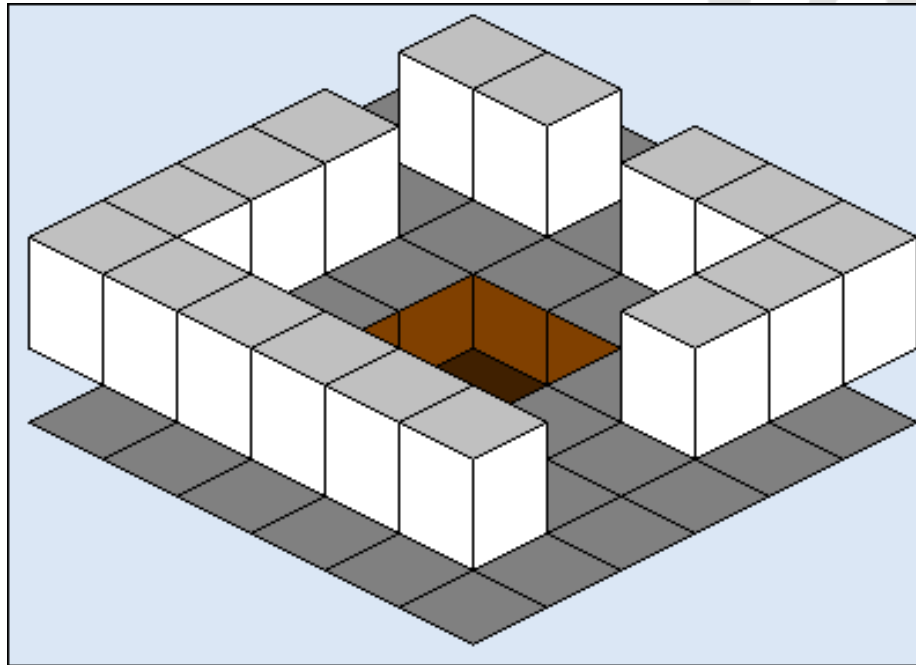
YES



3D Games Have to Deal With:

Should objects further away look smaller?

NO



3D Games Have to Deal With:

Cool lighting effects



<http://youtube.com/watch?v=N6r6tbf4UGU>

3D Games Have to Deal With:

The Uncanny Valley



http://www.cgarena.com/freestuff/tutorials/max/songhyekyo/final_large.jpg

3D Games Have to Deal With:

The Uncanny Valley

<https://www.youtube.com/watch?v=9K1Kd9mZL8g>

Credits

Notes by your instructor Gail Carmichael:

contact@gailcarmichael.com

<http://gailcarmichael.com/>