Solid 3D Objects

This article deals with the logistics of creating three dimensional, solid geometrical objects and manipulating them in PicturesToExe.

Frames

- A frame is a (normally) transparent object to which other objects can be attached
- The frame is then classed as a "parent" and all other attached objects are "children" of that frame
- Any Pan, Zoom or Rotate animation applied to the parent frame is then "inherited" by the children
- Blurring (Blur) of a parent object is also inherited by the child object

"Nested" Frames

- It is not unusual to have multiple "nested" frames in parent child configurations
- Such frames can then be assigned individual tasks
- Examples would be a Master Frame for Zooming and a nested frame for Pan (or vice versa)

In the following example the Image Object is attached to (a child of) the GREEN Frame. The GREEN Frame is attached to (a child of) the BLUE Frame which in turn is attached to (a child of) the RED Frame.

The transparent png frames shown here have been made in an Image Editor with colored "stroke lines". In use, the opacity of the lines can be turned to zero.

The Image can be moved with respect to the GREEN Frame. The GREEN Frame can be moved with respect to the BLUE Frame and the BLUE Frame can be moved with respect to the RED Frame.

Shapes

- The most common shapes used to create 3D objects in PTE are
  - Rectangles or Squares
  - Triangles
- The main thing to note when making these shapes is that "Pixel Accuracy" is required
- Use the maximum viewing percentage in the Image Editor when making selections

Squares:

- Squares (or rectangles) are the easiest shapes to make. Open "File / New" in your image editor and specify the Width and Height and the Fill Color. Save to your Project Folder as a JPEG File.

Triangles:

- The use of a Trigonometry Calculator such as Trigonometry Calculator is advised

- The Calculator deals with Right Angled Triangles and the results used to determine the size of the rectangle required to construct the full triangle in your Image Editor

Example:

- If the Triangle to be made is an equilateral triangle - all sides and all angles equal - then the "half triangle" used to calculate the dimensions would look like the following (the triangle in the calculator is just a guide; it does not represent the actual result):

- The dimensions used for the rectangle containing the Equilateral Triangle would be
- Width = 2xb = 2
- Height= a = 1.732

A rectangle 2000×1732 pixels (or 1000×866; or 500×433) could be used to construct the equilateral triangle required. Note that the next smaller size (250×216.5) is not possible - your Image Editor will not work with half pixels! Work at the <mark>MAXIMUM</mark> Zoom Ratio in your Image Editor.

- Save as a transparent .PNG file in a variety of colors for future use. The white version can also be used as a MASK.

- The equilateral triangle can be used for making a Hexagon
- A triangle with an angle of 72 degrees at the apex is required for making a Pentagon
- A triangle with an angle of 45 degrees at the apex is required for making an Octagon

Download a Pack of Objects required for the following projects **HERE**

Assembly

There are many different ways of assembling 3D objects. The following are two methods which can be used to assemble CUBES and PYRAMIDS

Cubes

The following method of assembling a CUBE is dedicated to Dan Brown and called the "Rose Cross". Using 1080 pixel square frames and 1080 pixel square sides:

- Add a "Primary Frame" 1080 Pixels Square and turn through 90 degrees (Rotate X=90)
- Add a "Secondary Frame" 1080 Pixels Square to the Primary Frame and turn through -90 degrees (Rotate X=-90)
- Add a Blue 1080 Pixels Square to the Secondary Frame and turn off the "Show Back Side"
- Add a Red 1080 Pixels Square to the Blue 1080 Pixels Square
- Move its Center by -100 (down) and move its Pan by 100 (down) - turn off the "Show Back Side"
- Add a Green 1080 Pixels Square to the Blue 1080 Pixels Square
- Move its Center by -100 (right) and move its Pan by 100 (right) - turn off the "Show Back Side"
- Add a Yellow 1080 Pixels Square to the Blue 1080 Pixels Square
- Move its Center by -100 (left) and move its Pan by 100 (left) - turn off the "Show Back Side"

- Add a Magenta 1080 Pixels Square to the Blue 1080 Pixels Square
- Move its Center by 100 (up) and move its Pan by -100 (up) - turn off the "Show Back Side"
- Add a Cyan 1080 Pixels Square to the RED 1080 Pixels Square
- Move its Center by -100 (down) and move its Pan by 200 (down) - turn off the "Show Back Side"

- Apply -90 degrees Rotate X to each of the RED and CYAN Squares
- Apply 90 degrees Rotate X to the Magenta Square
- Apply 90 degrees Rotate Y to the Green Square
- Apply -90 degrees Rotate Y to the Yellow Square

- Apply +100 Pan (right hand box) to the Secondary Frame - this allows the Cube to rotate about its own center

Use the Rotate X and Rotate Y Parameters of the Primary Frame to control the movement of the Cube between Key Frames

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Pyramids

The Example uses a 1000×1000 Square Base and equilateral triangles in a 1000×866(high) png file.

- Add a 1000×1000 Frame (Transparent .png) - Zoom to 50%
- Add the 1000×1000 White Square to the 1000×1000 Frame
- Add the Red Triangle to the White Square
- In 3D Parameters Un-tick Show Back Side

- Move the Center of the Red Triangle to +100 (up)
- Pan the Red Triangle to +100 (down)
- Apply Rotate X= -54.734

- Add the Blue Triangle to the White Square
- In 3D Parameters Un-tick Show Back Side

- Rotate the Blue Triangle -90

- Move the Center of the Blue Triangle to +100 (left)
- Pan the Blue Triangle to +100 (right)
- Apply Rotate X= -54.734

- Add the Green Triangle to the White Square
- In 3D Parameters Un-tick Show Back Side
- Rotate the Green Triangle +90

- Move the Center of the Green Triangle to +100 (right)
- Pan the Green Triangle to -100 (left)
- Apply Rotate X= -54.734

- Add the Yellow Triangle to the White Square
- In 3D Parameters Un-tick Show Back Side
- Rotate the Yellow Triangle +180

- Move the Center of the Yellow Triangle to +100 (down)
- Pan the Yellow Triangle to -100 (up)
- Apply Rotate X= -54.734

- Rotate the 1000square-Transparent Frame through +90
- Apply (approximately) 33.333 Pan Z to the 1000square White Base

- Rotate X and Rotate Y for the 1000square-Transparent Frame will now animate the Pyramid

Video