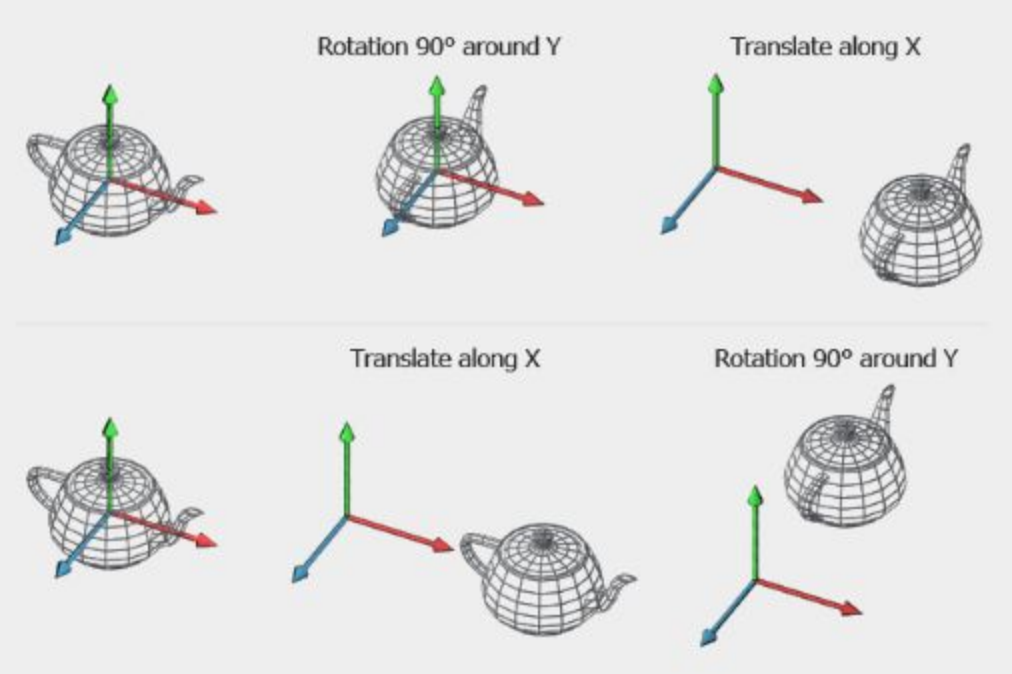
EXERCISE - DAY 1 - MATRIX TRANSFORMATION

Learning Objectives:

1. Demonstrate three kinds of transformation - translation, rotation, and scale.



Activity:

Using cardboard, cardstock, pipe cleaners or other props, represent the three kinds of transformation discussed.

1. Translation
2. Rotation
3. Scale

Questions Posed:

Q1: What information do you start with about these objects before performing a transformations?

A1: Starting position, starting rotation, starting scale

Q2: What information to you end up with about these objects after performing the transformations?

A2: new position, new rotation, new scale

Q3: When a second object is introduced, whose perspective do we use to determine the x, y, and z axes? Which object gets to define the 3d space?

A3: That depends! There's world space, local space; it could be neither of the objects, or one of them. REMEMBER: Parent & Child

Q4: What could this be used for in a game?

A3: SO MANY THINGS. Very open ended.

Q5: What are the matrices here?

A5: the coordinates of the objects

Key Vocabulary & Concepts:

Scale - the ratio (or relationship) of the length in a drawing or model to the length of the real thing; that length can be along any of an object's axes

Rotation - a circular movement around one or more axes

Translation - sliding or moving a shape without rotating or flipping it

Matrices - an array of numbers

Array - items such as objects, numbers, etc. arranged in rows and columns

Transformation - changing a space using turn, flip, slide, resize; translation is a kind of transformation; rotation is a kind of transformation; scaling is a kind of transformation

BONUS VOCABULARY TEASER

Parent and Child