Enlargement/ Transformations in VR

Learning Area
Maths

Year Level
Year 9-10

Introduction

In this lesson, students will explore the concept of enlargement transformations in geometry. Using the Arkio VR app, students will visualise and manipulate shapes to understand how enlargement affects different aspects of objects. They will also use Tinkercad to create and modify 3D shapes, reinforcing their understanding of how enlargement transformations work in a hands-on, interactive way.

Application

Arkio
Arkio is a VR app that allows users to create and design in a 3D space. In this lesson, students will use Arkio to apply enlargement transformations to various shapes, observing and identifying which aspects remain constant and which change.
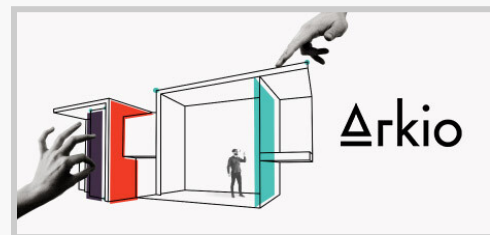
Lesson Overview

Lesson Objectives

- Apply enlargement transformations to shapes and objects.
- Identify and explain aspects of shapes that remain the same and those that change after transformation.
- Use dynamic geometry software to

VR/AR Resources

- Tinkercad

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explore and create enlarged shapes.

Lesson Outline

Before the Immersive Learning Journey

- Ensure that all VR equipment (headsets, controllers, sensors) and software (applications, simulations) are properly set up and functioning.
- Ensure all VR equipment is set up and Arkio is ready to use.
- Ensure students are familiarised with the Arkio experience, knowing how to insert shapes on the design table and modify their size.
- Provide a brief introduction to enlargement transformations and their properties.
- Familiarize students with the basics of using Tinkercad for 3D modeling.
- Tinkercad class has been set up with student logins distributed.
- Teachers are encouraged to provide reflective tasks/questions to accompany stations.

During the Immersive Learning Journey

IMVR Station: Students will use Arkio to insert shapes on the design board before manipulating shapes, applying enlargement transformations and observing the changes. They will take note of which properties (such as angles, shape features, ect) remain unchanged and which properties (such as side lengths) change.

Creation Station: Students will use Tinkercad to create 3D models of shapes. They will then apply enlargement/transformational changes to these shapes, comparing their original and transformed models to understand the impact of enlargement. Optional: Models from Tinkercad can be imported into CoSpaces if students would like to explain their findings using XR.

Research and Reflection Station: Students will research real-world applications of enlargement/transformations, such as in architecture or engineering. They will reflect on how understanding these transformations is useful in various fields.

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After the Immersive Learning Journey

Discussion Questions:

1. What properties of shapes remained constant during the enlargement transformation in Arkio?
2. How did using Tinkercad help you understand the concept of enlargement transformations?
3. Can you think of any real-life examples where enlargement transformations are used? How do they apply to those scenarios?