EDMA625 - Mathematics, Science, and Technology I

Curriculum Design

Building My Dream House

A Cross-Curricular Learning Activity

Grade: 8
Subjects: Mathematics – Geometry, Applied Design, Skills, and Technologies, and Arts Education

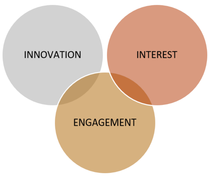
Big Ideas

Mathematics 8	Applied Design, Skills and Technologies 8	Arts Education 8
• The relationship between surface area and volume of 3D objects can be used to describe, measure, and compare spatial relationships.	• Complex tasks require the acquisition of additional skills.	• Individual and collective expression can be achieved through the arts includes but is not limited to the four disciplines of dance, drama, music, and visual arts

Rational

This learning activity shows an example of cross-curricular teaching and learning in which students have an opportunity to be innovators and constructors of their own learning. In focusing on designing their dream house, this learning activity combines the knowledge of Geometry, Applied Design, and Arts.
This learning activity intends to take students to the interdisciplinary learning environment, which helps them to take their skills beyond the level of knowledge, demonstrate a deeper understanding of teaching content, and apply their skills to solve real problems in their lives.
This Cross-curricular design adapted BC's curriculum, and learning activities followed ISTE standards.

Consideration



Process

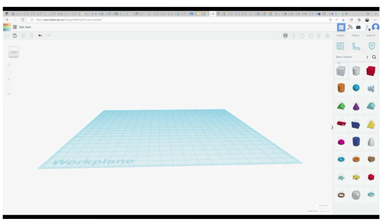
Entry Points	• Finding Shapes in Life • Museum Shapes - A Matching Game
Learning Activity	• Introduction to Primitve Shapes • Build Your Dream House
Reflection	• Student Self-Assessment
Assessment	• Fomative • Summative

Finding Shapes in Life	Museum Shapes- A Matching Game	Introduction to Primitive Shapes	Build Your Dream House
•According to the slide-Finding Shapes in Life. Students will find the sharps from daily life scenarios. And draw the shapes on the paper.Then students will revise the properties of different shapes and solids and fill the answer sheet about various geometric figures.	•Students will match the shapes to the Metropolitan Museum of Arts collection. Students will separate into three groups (depending on the capacity of a class). Each group will have a box of Museum Shapes matching games. The group which matched the most artistic works with shapes will win. And the reward can be candy or Extra points.	•Taking an idea from your mind to the real world is an exciting adventure. In Tinkercad this begins with a new design. In the new design, simple primitive shapes can be combined in different ways to build a more complex shape. In this project, you will explore primitive 3D shapes (like boxes, tubes, and cylinders) and learn to identify those shapes in a larger design.	•In this activity, the student will follow the steps to create a simple house shape. After completing the activity, you will be let loose to create your own unique design or personalize your house further on your own.

Curricular Connections

Subjects	Mathematics 8	Applied Design, Skills, and Technologies 8	Arts Education 8
Curricular Competency	**Reasoning and analyzing** Use tools or technology to explore and create patterns and relationships, and test conjectures **Understanding and solving** Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving Visualize to explore mathematical concepts Use tools or technology to explore and create patterns and relationships, and test conjectures	**Defining** • Choose a design opportunity Ideating • Choose an idea to pursue	**Exploring and creating** Intentionally select and apply materials, movements, technologies, environments, tools, and techniques by combining and arranging artistic elements, processes, and principles in art making Demonstrate an understanding and appreciation of personal, social, cultural, historical, and environmental contexts in relation to the arts
Content	Construction and views of 3D objects • top, front, and side views of 3D objects • drawing and interpreting top, front, and side views of 3D objects • using design software to create 3D objects	Drafting • manual and computer-aided drafting techniques isometric, orthographic, oblique, scale, 2D and 3D drawings • elements of technical plans and drawings	visual arts: elements of design: line, shape, space, texture, colour, form (visual arts) the visual element that pertains to an actual or implied three-dimensional shape of an image; visual art forms can be geometric (e.g.,

Instructional Strategies:



Assessment

Assessment:

This learning activity has several different assessment strategies, to provide both formative assessment and summative.

Learning Activities	*Student*	*Teacher*
Activity 1: Finding Shapes in Life	*Will check their prior knowledge by the Handout-shapes*	*will assess students' prior knowledge by the Answer Sheet - Shapes*
Activity 2: Museum Shapes – A Matching Game	*Self-assessment according to Marzano's Self-assessment form*	*Observation*
Activity 3: Introduction to Primitive Shapes		*Observation*
Activity 4: Building Your Dream House		*Assess students' projects according to* ***Evaluation Rubric: Building Your Dream House(Appendix B)***

Authentic Pieces of Work

Media Review	Journal	Lesson Plan
Download	Download	Download