

BUILD YOUR DREAM HOUSE (LEVEL 1)

Description	Learners will create a model of their dream house or room and learn about geometry and operations! Learners will then draw and color 2D shapes to represent different parts of the room or house, considering the totals from their tables and present their drawings to family and friends.
Leading Question	How can we use shapes to build our dream house?
Total Time Required	~ 3.5 hours in total over 4 days
Supplies Required	Paper/cardboard, ruler/measuring tape, color pens, scissors, glue/tape/stapler
Subjects	Math (geometry and operations), Engineering
Supervision	High supervision
Learning Outcomes	Learners will be able to: <ol style="list-style-type: none"> 1. Develop an understanding of various 2D shapes, including their sides and corners (vertices), and learn to identify and name these shapes. 2. Practice basic addition skills within the range of numbers 1-10 3. Enhance their drawing and design skills by creating a blueprint or model of their dream house or room using 2D shapes. 4. Foster creativity by designing and decorating their dream house or room with imaginative elements. 5. Improve presentation and communication skills by sharing their design ideas and the shapes used with family members.
Previous Learning	Numbers 1-10
Topics Covered and Skills Developed	<ul style="list-style-type: none"> ● 2 Dimensional (2D) shapes ● Construction ● Vocabulary – 2D shapes, sides, corners ● Addition within 10 ● Drawing and design skills ● Creativity skills ● Presentation and communication skills


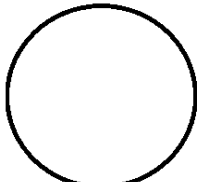

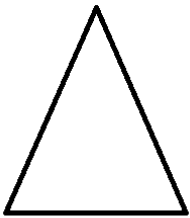
DAY 1

Today you will learn about creating a model of our dream house and practice some math!

Suggested Duration	Activity and Description
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20 minutes

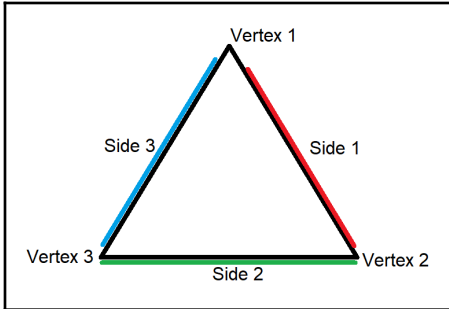

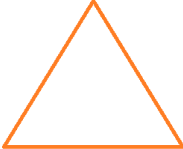

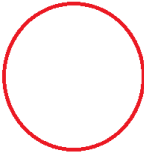
- Introduction: we are going to learn how to create a model of our dream house and practice some math! First, let's learn about some shapes that we can use to build our house.
- The learner will complete the following activities to better understand 2D shapes and their properties (Alternatively, learners can complete the "[Beauty in Shapes](#)" project in the IFERB resource page).
- **Exploring 2D Shapes**
- In this activity, learners will be introduced to the concept of shapes of objects.
- Start by helping the learner understand the concepts of shape and 2D shapes.
- Present these examples to the learners, naming in each case the shape that each object has:


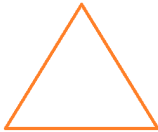

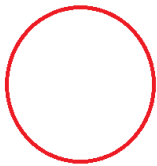

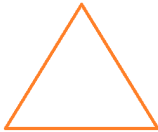

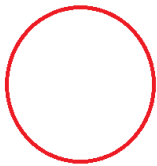

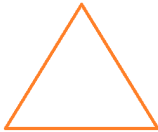

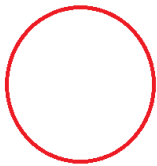
Object	Shape
 Pizza	 Circle
 Road sign	 Triangle

- Base, on the examples, think what a shape is:

Input*:

- A shape is the boundary or outline of an object
- A shape is the surface we see
- A shape does not depend on the size or the colour of the object
- Draw shapes of different objects in your homes. For example, they can draw the shape of a phone, cup, door, window, house roof, tree, etc.

	<ul style="list-style-type: none"> Share the drawing with the family members who will ask questions (based on the input*) to check whether you have understood the concept of shapes of objects.
<p>20 minutes</p>	<p>Properties of 2D shapes</p> <ul style="list-style-type: none"> In this activity, you will identify the number of sides and the number of vertices or corners of some basic 2D shapes <ul style="list-style-type: none"> 2 dimensional (2D) shapes are shapes that are completely flat. Share examples of things that are flat and things that are not flat. Basic 2D shapes include the Circle, the Triangle, the Square and the Rectangle. All 2D shapes have sides and vertices (corners) except for a circle, which is made up of a curved line with no corners. Sides are the straight lines that form the shape. Vertices are the corners that the two lines make. Here are examples: <div data-bbox="526 1234 1414 1541" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <div style="display: flex; align-items: center;"> <div style="flex: 1;">  </div> <div style="flex: 1; padding-left: 20px;"> <p>A triangle has 3 sides and 3 vertices or corners</p> </div> </div> </div> Draw the 2D shapes below: <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div>

	<ul style="list-style-type: none"> Count the number of sides and corners each shape Name the 2D shapes Ask the learner to give 3 examples in each case of objects having the shape Learners should draw and complete the table below: <table border="1" data-bbox="467 558 1414 1398"> <thead> <tr> <th>Shape</th> <th>Number of sides</th> <th>Number of corners</th> <th>Name of shape</th> <th>Example of objects with that shape</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>0</td> <td>0</td> <td>Circle</td> <td>Pizza, wheel, coin</td> </tr> </tbody> </table> <p>Wrap up Activity 2 with</p> <ul style="list-style-type: none"> A triangle is a 2D shape with three sides and three corners. A square is a 2D shape with four sides and four corners. The four sides all have equal length. A rectangle is a 2D shape with four sides and four corners. Opposite sides are of equal length. A circle is a 2D round shape. A circle has 0 sides but 1 curved line. All its points are of equal distance from the Center point. 	Shape	Number of sides	Number of corners	Name of shape	Example of objects with that shape																	0	0	Circle	Pizza, wheel, coin
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<p>20 minutes</p>	<ul style="list-style-type: none"> Drawing 2 Dimensional Shapes 																									

- Draw some basic two dimensional shapes; the **Circle**, the **Triangle**, the **Square** and the **Rectangle**
- Let's draw each shape! Bring out your paper, pen or pencil and a ruler or any flat object with a straight side like a phone/bookmark/cardboard or fortified paper:
 - Use a ruler to draw a square with 4 equal sides and right angles, and a rectangle with equal opposite sides and right angles. Use the corner of a mobile phone or a notebook to make sure your angle is right.
 - Plot three points that are **not on a straight** line and join each point to the next one to draw a triangle
 - Use a thread tied to a needle on one end and a pencil on the other. Fix the needle in one spot on a paper and move the pencil away, stretching the thread. Rotate the pencil while holding the needle in the same spot to draw a circle. You can also use a finger to pin down one end of the thread instead of a needle as shown below



Source: <https://www.wikihow.com/Draw-a-Circle>



10 minutes

Reflection

Reflect on the project activities you have done so far
 What are the three things you have learned from the project activities ?
 What questions or wonders do you still have? ?

DAY 2

Think about how you will design your dream house. First, you will understand how your own house or apartment was designed.

Suggested Duration	Activity and Description																														
15 minutes	<p>Activity 5: Exploring 2D shapes in our house</p> <ul style="list-style-type: none"> Walk around the house and try to identify basic 2D shapes in ceilings, walls, and in different objects around the house. 																														
20 minutes	<ul style="list-style-type: none"> List the shapes and objects in their notebook as follows: <ul style="list-style-type: none"> Living room: squared wall, rectangular table, rectangular couch, etc. My bedroom: squared wall, rectangular ceiling, round window, etc. The learner will do a tally count of the total number of shapes in each room and complete the table below in her or his notebook <table border="1" data-bbox="467 869 1403 1167"> <thead> <tr> <th>Room</th> <th>Square</th> <th>Circle</th> <th>Rectangle</th> <th>Triangle</th> </tr> </thead> <tbody> <tr> <td>e.g. living room</td> <td>II</td> <td>I</td> <td>###</td> <td></td> </tr> <tr> <td>e.g. kitchen</td> <td>I</td> <td>III</td> <td>II</td> <td>I</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>3</td> <td>4</td> <td>7</td> <td>1</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Reflection questions: <ul style="list-style-type: none"> What shape is the most common in our house? 	Room	Square	Circle	Rectangle	Triangle	e.g. living room	II	I	###		e.g. kitchen	I	III	II	I											Total	3	4	7	1
Room	Square	Circle	Rectangle	Triangle																											
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e.g. kitchen	I	III	II	I																											
Total	3	4	7	1																											
30 minutes	<ul style="list-style-type: none"> Draw the design of the house on a piece of paper. Instead of a top view of the room, the learner can draw the wall of one or more rooms or spaces on separate pieces of paper/pages of his or her notebook. Some examples: <div style="display: flex; justify-content: space-around; align-items: center;">   </div>																														

	<ul style="list-style-type: none"> • Share your drawings with family members
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DAY 3

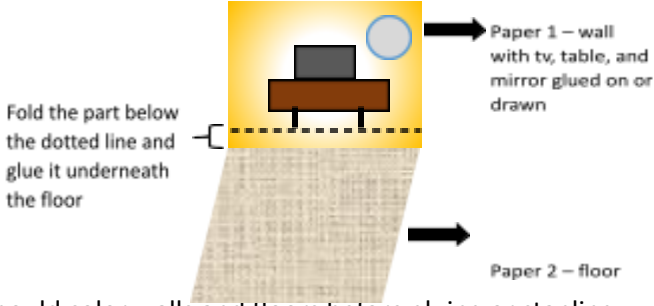
Today you will come up with ideas for their house or room blueprint.

Suggested Duration	Activity and Description
20 minutes	<ul style="list-style-type: none"> • Today, the learner will come up with ideas for their house or room blueprint. • Prompts <ul style="list-style-type: none"> - How do I want my house or room to look? Will the walls be square or rectangular? Can they be triangular? - What other objects do you want there that you can draw? - How many square, circle, rectangle, and triangle shaped objects have we listed?
10 minutes	<ul style="list-style-type: none"> • The learner will recreate the tally table from day 2 in their notebook or piece of paper and count the total for each shape.
30 minutes	<ul style="list-style-type: none"> • The learner will draw and color all the shapes according to the total shown in the table. E.g. 4 rectangles of different sizes, two circles, one triangle etc. Each shape will represent part of the room – one rectangle is the wall; a circle can be glued on to the wall to represent a mirror. Another rectangle can be glued to represent a photo frame etc.

DAY 4

Today you will play a treasure hunt game!

Suggested Duration	Activity and Description
30 minutes	<ul style="list-style-type: none"> • Today, the learner will continue decorating different walls, cutting out shapes and gluing objects onto walls, and, finally, putting the different

	<p>parts together. An adult will help with gluing the different parts together. The wall and floor can be glued as follows</p>  <p>Fold the part below the dotted line and glue it underneath the floor</p> <p>Paper 1 – wall with tv, table, and mirror glued on or drawn</p> <p>Paper 2 – floor</p> <ul style="list-style-type: none"> ● Tips: <ul style="list-style-type: none"> - The learner should color walls and floors before gluing or stapling them together - The bottom part of the wall can be folded by an adult to go under the floor - The learner can also, with the help of an adult, draw different objects onto walls instead of gluing and pasting them ● Optional: Learners can make several rooms and arrange them side by side to create a house.
<p>10 minutes</p>	<ul style="list-style-type: none"> ● Present the finished house to your family and describe how you designed each wall and the shapes of different objects and what they represent. <p>Family will provide feedback to you. The feedback will include:</p> <ul style="list-style-type: none"> ● What do you love about the dream house? ● Any questions you have for the learner
<p>10 minutes</p>	<p>Final Reflection</p> <p>Reflect on your learning and experience in the project</p> <ul style="list-style-type: none"> ● What are the two most important things I learned from the project? ● What were my roadblocks/challenges in the project? Who or what helped me to overcome them?

<p>Additional enrichment activities:</p>	<p>Learners can be taught the properties of some 3-dimensional shapes such as cuboids, cylinders, cones and spheres and asked to create some of these to build their house</p>
<p>Modifications for simplification</p>	<p>The learner can design the different rooms of his or her house on paper without making cut-outs of the different objects</p>

ASSESSMENT CRITERIA

A majority of my students were able to:

- Correctly identify and name at least three different 2D shapes presented during the exploration activity.
- Demonstrate the ability to perform basic addition within the range of numbers 1-10. compound machines, and that solves some problem/serves some purpose.
- Successfully draw basic 2D shapes, including squares, rectangles, triangles, and circles.
- Display creativity in their reflections by sharing at least one unique or imaginative insight about shapes or their learning experiences.