

A tour around the Math

Created by: **Amr Gad Elkariem Hussein Elsherief**



Timeframe of activity: 30 – 45 min

Tags: Math - Cards for geometrical shapes – shapes, 2-D, 3-D, dimensional shapes – Mathematical Rules

Grade Level: Primary stage (Grade 1-6)

App/Tech Tools: Cleverbooks Geometry App, device (tablet/phone)

Additional material: printable shape markers, Cleverbooks Geometry – cubes puzzles

Learning Objectives:

By the end of this activity, the student will be able to:

1. Recognize the augmented reality for education (Geometry – building)
2. Recognize the difference between solid and polygon
3. Deduce the number of sides – vertices – angles in each polygon (square – triangle – rectangle – Hexagon)
4. Deduce the number of faces – edges – vertices in each solid (Cube – Cuboid – Cond - Cylinder - Sphere – Pyramid)
5. Differentiate between the parts of circle (radius - diameter)
6. Determine the type of triangle according to its angles (Right – acute – obtuse) triangle
7. Analyzing and rebuilding solids (2D – 3D)
8. Deduce the name of solid after and before folding
9. Read and write the fractions by digits and by letters (half – third – quarter – eighth)
10. Deduce The meaning of circular sector and its angle
11. Deduce how to calculate the circumference of circle
12. Draw The shapes and solids after and before folded (after knowing them by using phone)

13. Analyze, compare, create, and compose shapes
14. Performs self-assessment through an electronic test using the application - Geometry

Suggested Questions:

- Define between Solid and Polygon
- If there a piece of pizza, and the mother wants to distribute it between 4 persons, represent the share of each one using the suitable fraction
- And if there another pizza and the father want to distribute it between 8 persons what is the share of each one (compare between the first and the second fraction)
- How engineers and artists distinguish between geometric shapes and non-spatial geometric shapes when building and drawing homes, hotels and tools

Lesson Activity:

1. Choose for Students as a leader of 4 groups and each Leader choose 3 students to help him in a certain task.
2. Each student downloads the application of CleveBooks Geometry and see it to choose the suitable task for him.
3. After that each leader choose the suitable task as:
 - a) first group choose (solids and polygons)
 - b) second group choose (types of triangle according to its angles)
 - c) The third group choose the fraction
 - d) The fourth group choose the circle and its parts
4. Each leader distributes the required task among each member of the team.
5. Print papers using for geometry which fin in the application and student using photoshop to separate each picture.
6. Distribute interactive cards to each group to facilitate the task.
7. Each group search the data by many ways (GoogleChrome – make PowerPoint – make a video cartoon) and other ways.
8. Each group displays its products in front of its counterparts by connecting its own device Portable interactive whiteboard.
9. Also making skype between students to explain the products of CleverBooks.
10. Making cartoon to explain augmented reality and its app – how to use it – what's the benefits of it.
11. Using video cartoon and champion between two schools by asking the questions which include the application to understand this application is talk about what.
12. Honoring the students participating by school administration and from Math's teacher.

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Questions outline:

- What are the names of some 2D shapes?
- What are the names of some 3D shapes?
- What are some words you can use to describe 2D and 3D objects? (flat, solid, corners, edges, sides, faces, vertices)?
- What does the word “net” mean or look like when creating 3D (solid) shapes?
- Search in your environment for two-dimensional shapes and for three-dimensional figures that match the figures you've learned?

Additional Ideas (optional):

- Videos by the student leader of first group (explain CleverBooks Geometry)

Resources:

The link of videos:

- https://drive.google.com/open?id=1H9x_nMUKNj2dQPnlx9Iil4doF_GgZfyx
- https://drive.google.com/open?id=1WS5bUlvxblQq1ZEYK2Xq_1Tj5x24zdyb
- https://drive.google.com/open?id=1O5vZrXrjrvo5I_PNVi-BVMZkNcyVL2vv

Pictures about how to use

- <https://drive.google.com/open?id=1A8KNGAI2rM6IHg0AKsYbPYG1Gp1CAHGt>
- <https://drive.google.com/open?id=1fAuWeLLBmwCg30dtMmXhPTwdtjNo-Wzq>

The student leader (Sylavia Salah) made a video of how to use CleverBooks Geometry

- <https://drive.google.com/open?id=1uGP2U-A2sOK9TV7aoQu3e5fi7WGo7Nvc>

Maria Explain the CleverBooks Geometry

- <https://drive.google.com/open?id=1UjL7gkCTRt2s0DwkScJe-q8AY1hi9cg7>
- <https://drive.google.com/open?id=1eMLw4ZJrJ4qv-ZsNF2yxhxOJOzVdwlIH>

Lekaa explain CleverBooks Geometry

- <https://drive.google.com/open?id=1z6jyc56-mTgr5l5wxO9YldTqlfj9XgZz>
- <https://drive.google.com/open?id=1Jxf8cYPa0nVT9S0V3OIWINpcjde8NkCM>

The student Leader (Logina) made a PowerPoint about the difference between solids and polygons

- <https://drive.google.com/open?id=1EX4JAJW3USUaZ-hg7ytNsCWzwSh8aU-r>

Now the student Sylvia Salah made a cartoon about:

1- The circle

- https://drive.google.com/open?id=1PbrP1M00_BwdO2BkiFoiZvTsF66ECnrr

2- The fraction

- <https://drive.google.com/open?id=1QDTJyFvVsnk78O7DwOwuFUUi8EPoyCVS>

The student leader (Nardeen Wael) made a PowerPoint about types of triangle according to its angles

- https://drive.google.com/open?id=1m6_9J91mEfBfWkJbQ-8n5IUMob7qQOJF

The student (Eveleen) made a video cartoon about champion between two schools and the questions about solids which found in application

- <https://drive.google.com/open?id=1O0EXZW5D3R4MQwcdSxQqHxphE94Ys0Y5>
- https://drive.google.com/open?id=1gj9WwhyXCtn5siQbp0ltwqGT3R4_YR0b6
- <https://drive.google.com/open?id=1qCuPuC7vHVZSGW5yULGwdN83ZZZOXxqO>

The student leader (Nardeen) made collect pictures about fractions

- https://drive.google.com/open?id=154Eti5PiGW557zlr9EtWku_Pu5BuG7S4

The student Leader (Logina) Made a PowerPoint about circle

-] <https://drive.google.com/open?id=1zrD5xSWiQFrhsC8ka-26tVWJs0bHNE0H>

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The student Leader (Sylvia) made continue videos

The triangle

- https://drive.google.com/open?id=1saWkSR0xtrSJ16u2pY_KmiFz1r22XSGI

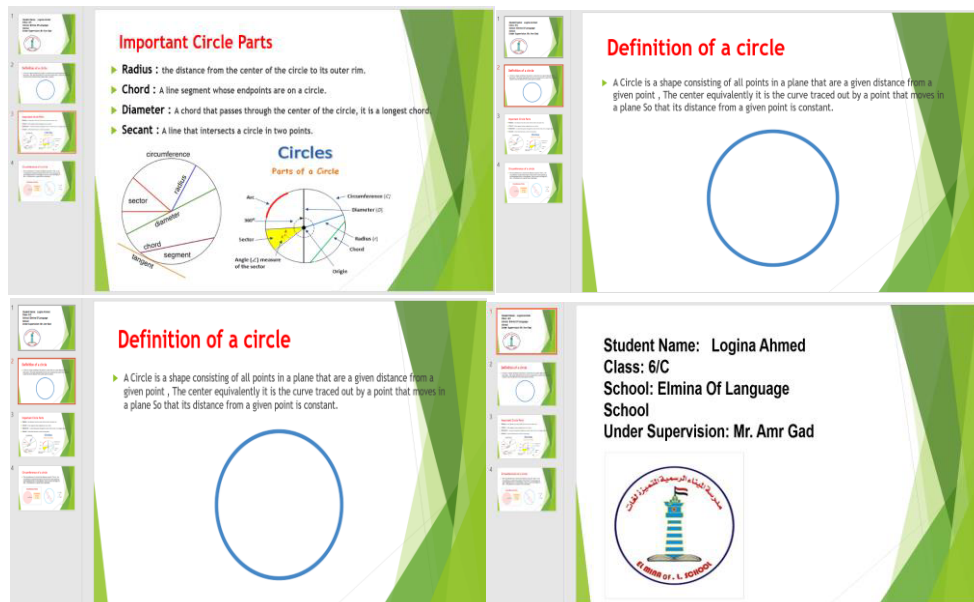
Fractions

- <https://drive.google.com/open?id=1mvWxDUIFA9nM4B8Djvliy4JegmOby7Mu>

The triangle

- https://drive.google.com/open?id=1Ka_bqjc7QzDzqfuKUr2MVKKWnM6qcbfS

Some photos:



Student Name: Logina Ahmed
 Class: 6/C
 School: Elmina Of Language School
 Under Supervision: Mr. Amr Gad



The Difference Between Solids and Polygons

Solids Figures are a three dimensional shapes it is called three dimensional or 3D because there are three dimensions width depth and height.



The Difference Between Solids and Polygons

Polygons are 2 dimensional shapes. They are made of straight lines , not curved lines.

Types of Polygons

 triangle	 quadrilateral	 pentagon	 hexagon
 heptagon	 octagon	 nonagon	 decagon

 Regular Pentagon	 Irregular Pentagon	 Triangle
 Concave Octagon	 Irregular Hexagon	 Complex Polygon

Diagonals and Angle Measures

- 1) Draw a convex heptagon.
- 2) Choose one vertex and draw all possible diagonals from that vertex.
- 3) How many triangles are formed?



Convex Polygon	Number of Sides	Number of Diagonals from One Vertex	Number of Triangles	Sum of Interior Angles
quadrilateral	4	1	2	$2(180) = 360$
pentagon	5	2	3	$3(180) = 540$
hexagon	6	3	4	$4(180) = 720$
heptagon	7	4	5	$5(180) = 900$

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