Using Isometric Drawing Tool

Teaching learning of mathematics

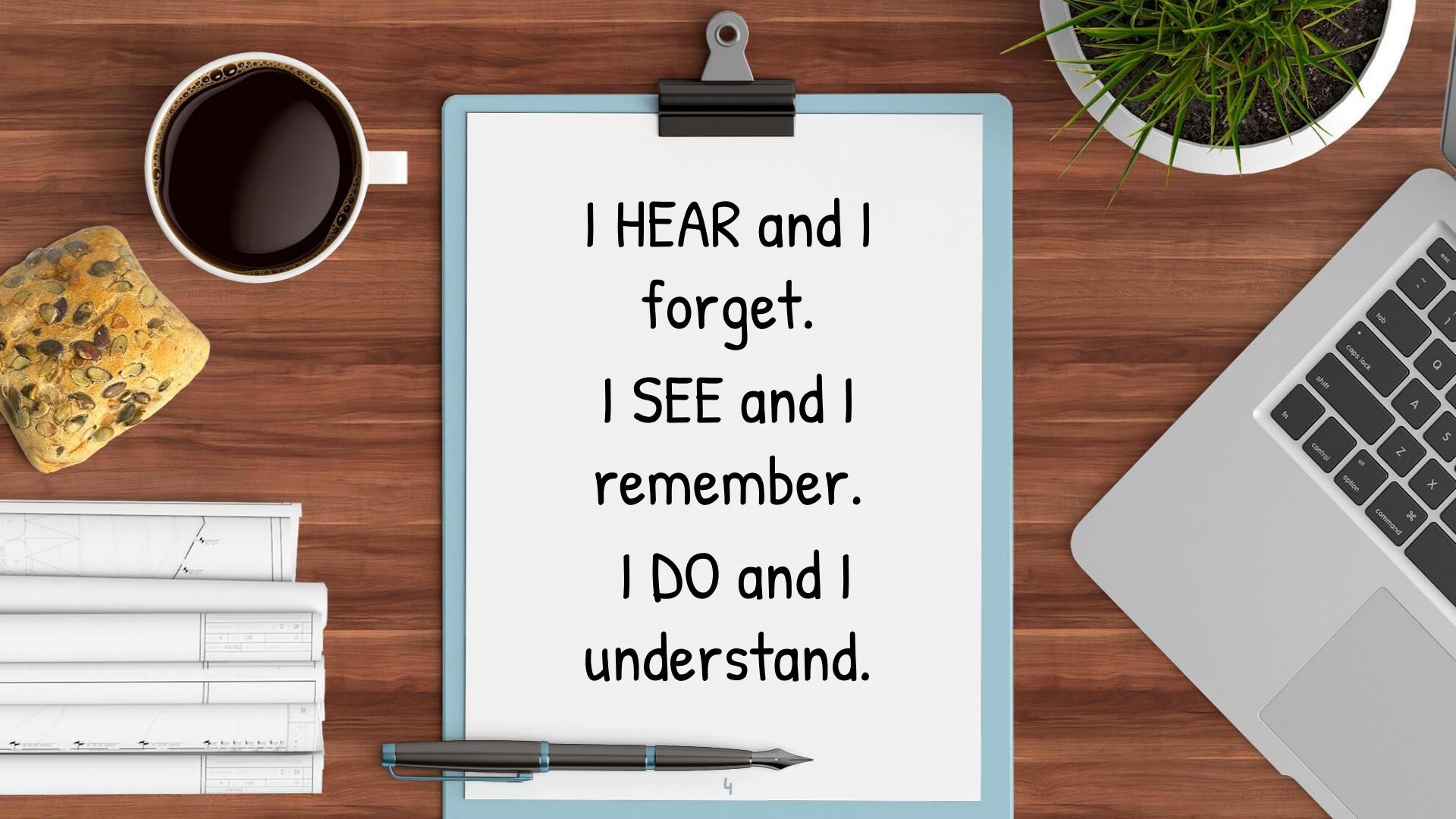
Hello!

I am Rashmi Kathuria, a learner, an explorer, a Math teacher!

I am here to share about an interactive drawing tool which can be creatively used in an online Math Classroom for visualising and exploring Mathematics.

- Observation
- Imagination
- Visualisation
- Self exploration
- Analysis
- Creation

SKILLS


I HEAR and I forget.
I SEE and I remember.
I DO and I understand.

ISOMETRIC DRAWINGS

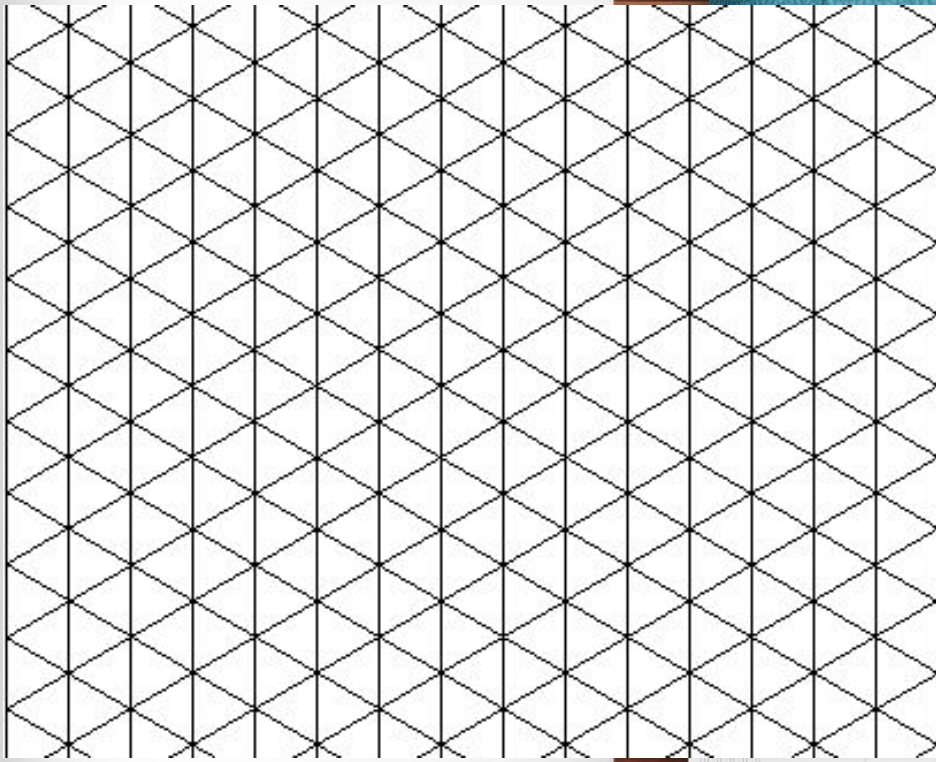
DRAWINGS OF 3D SHAPES ON 2D PAPER.

WE USE ISOMETRIC DOT PAPER.

ISOMETRIC PAPER

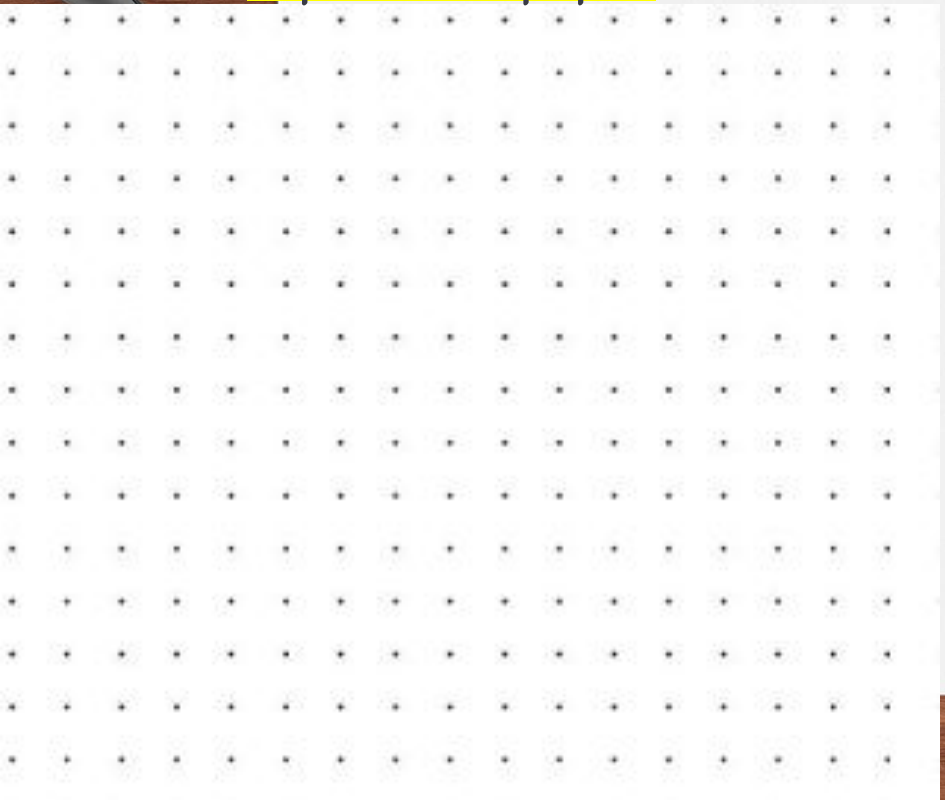
isometric (meaning “equal measure”)

where the X and Z axes are inclined to the horizontal plane at the angle of 30º.

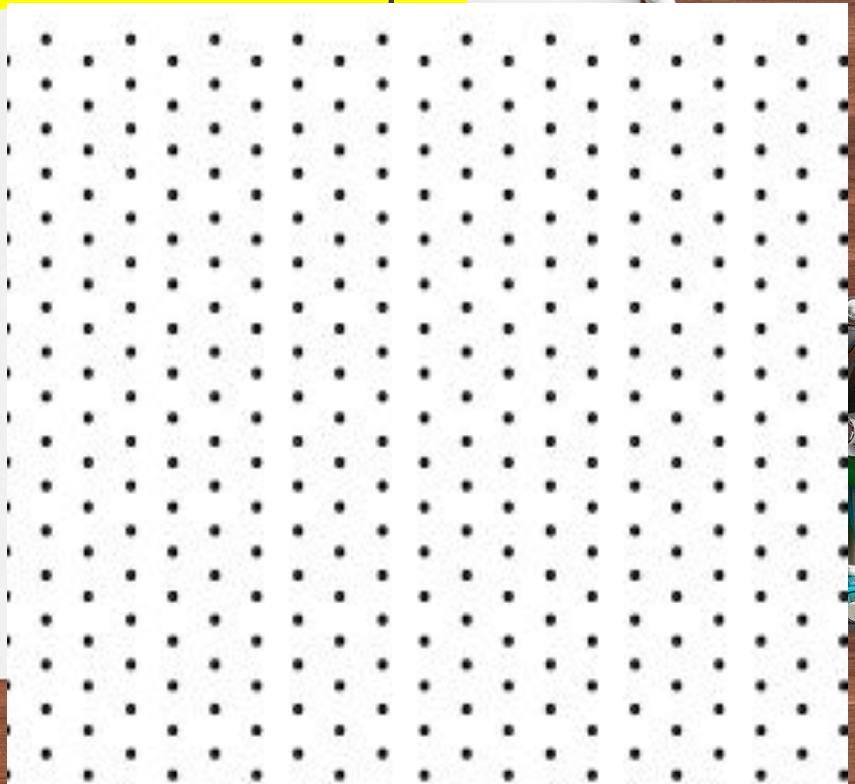


VISUALISE THE DIFFERENCE

Square dot paper

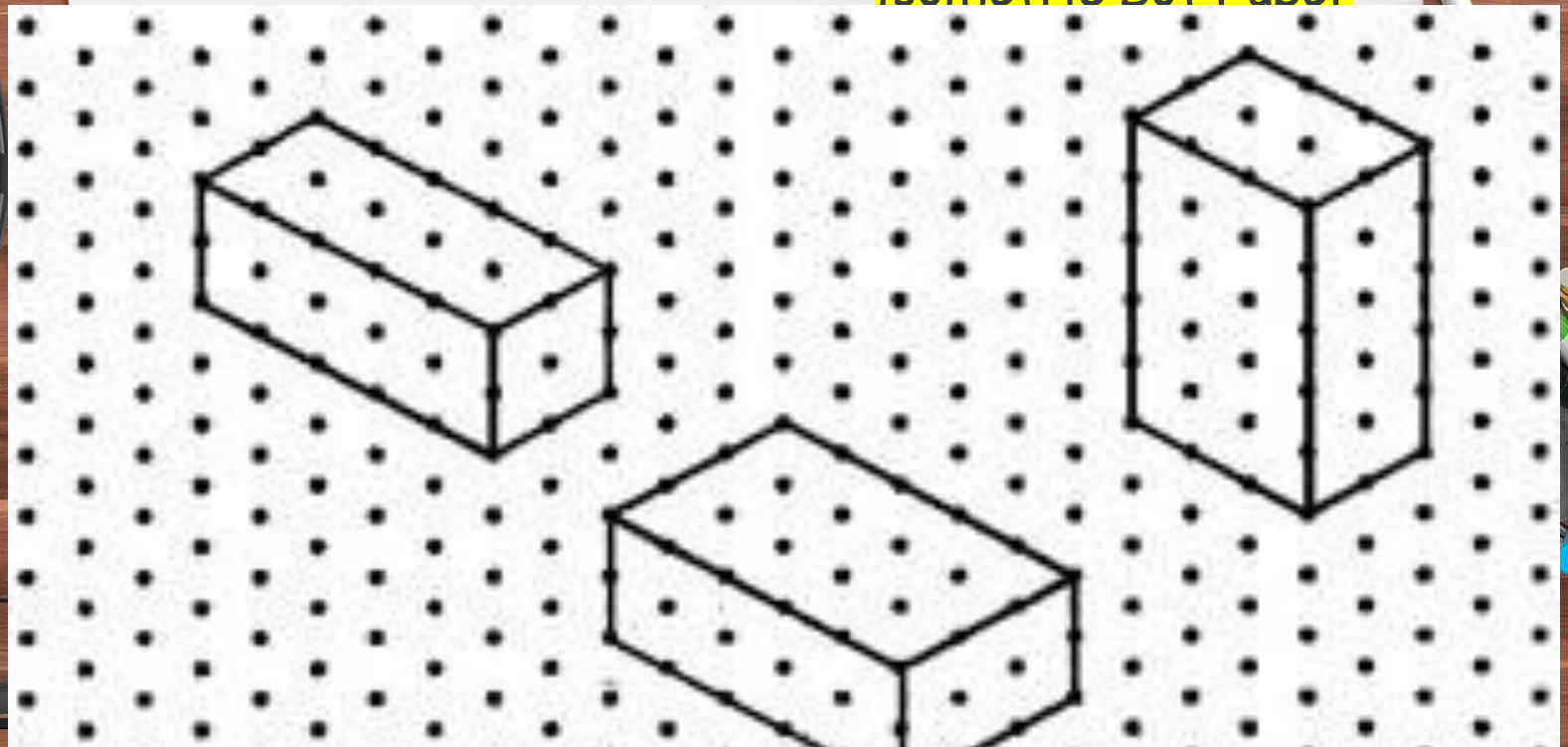


Isometric Dot Paper



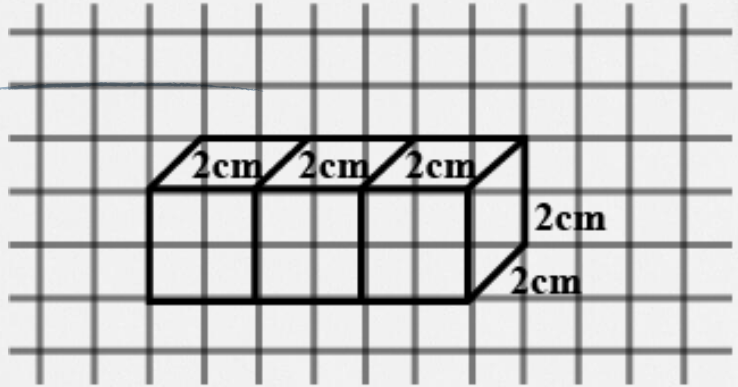
Visualise cuboids on

Isometric Dot Paper

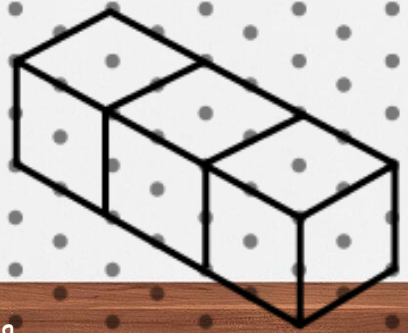


An **oblique** sketch puts more focus on the face or front of an object while an **isometric** sketch puts more focus on the edge of an object. To achieve this, **oblique** sketches are usually drawn using a 45 degree angle to render the 3rd dimension while **isometric** sketches are drawn using a 30 degree angle.

Oblique sketch:



Isometric sketch:



Isometric drawing tool

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ILLUMINATIONS

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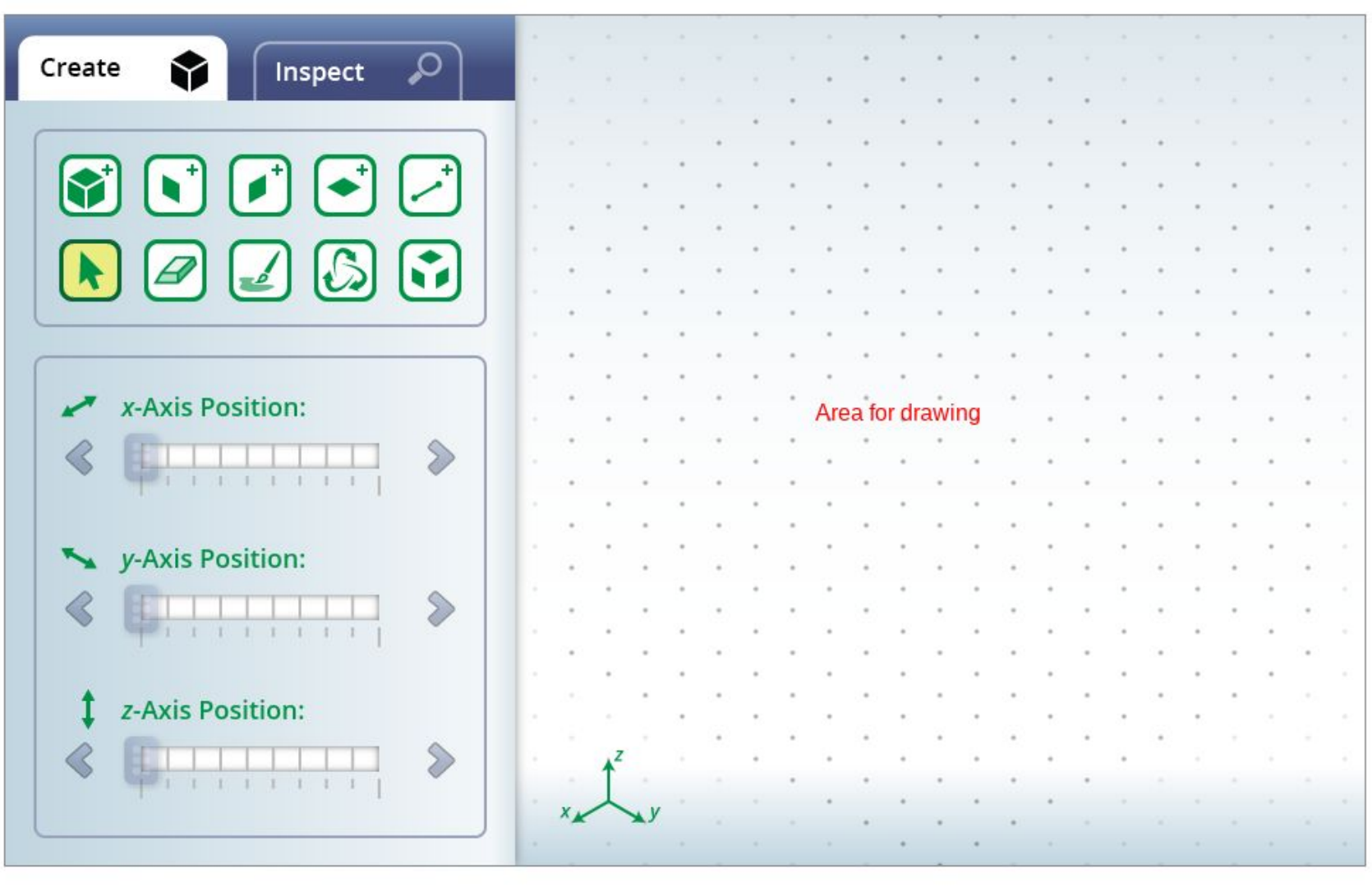
Isometric Drawing Tool

Grade: 3rd to 5th, 6th to 8th, High School

Use this interactive tool to create dynamic drawings on isometric dot paper. Draw figures using edges, faces, or cubes. You can shift, rotate, color, decompose, and view in 2-D or 3-D. Start by clicking on the cube along the left side; then, place cubes on the grid where you would like them.

This interactive is optimized for your desktop and tablet.

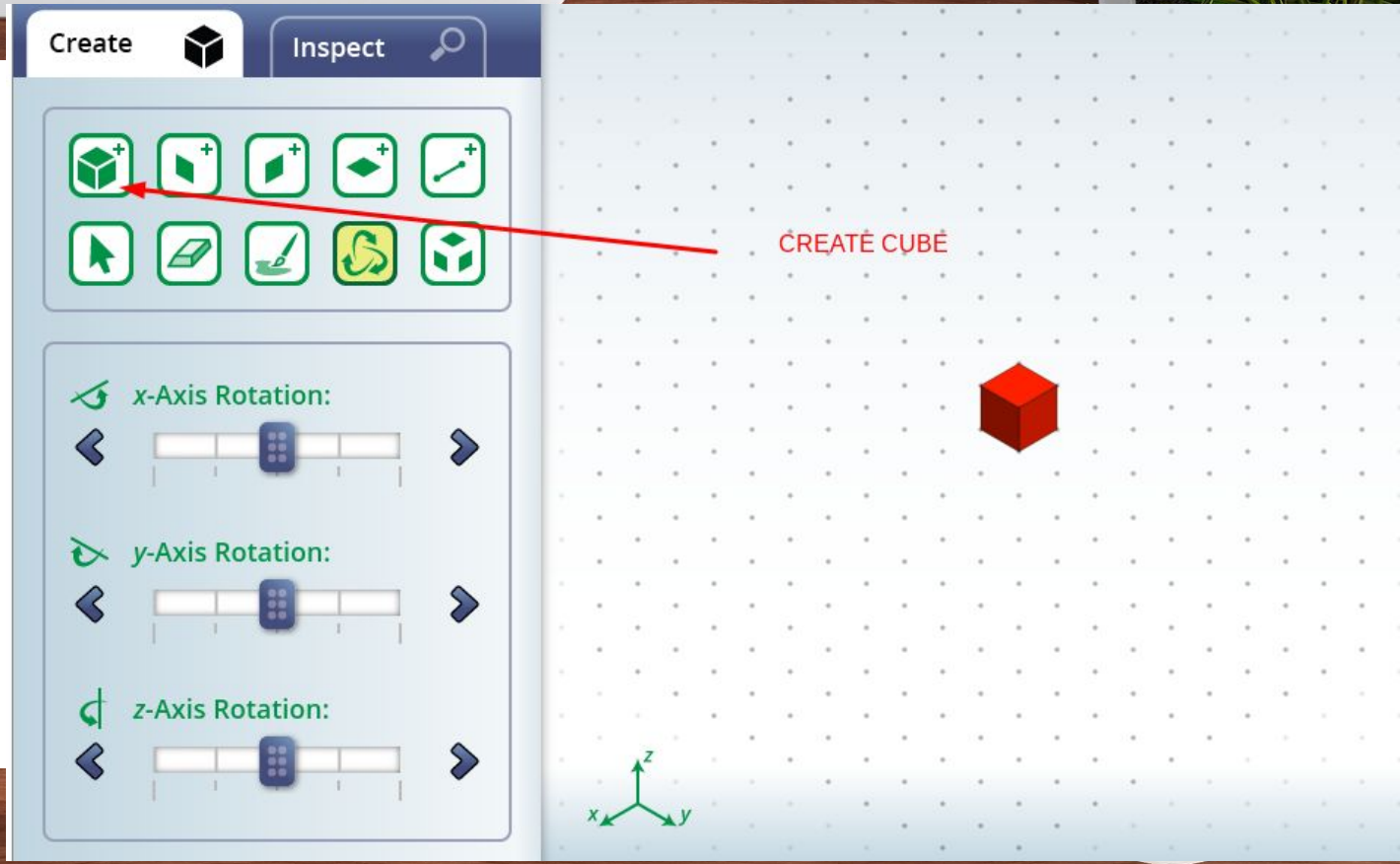

Create
Inspect
x-Axis Position:
y-Axis Position:
z-Axis Position:
Area for drawing
z
x
y

What you can do?

- Use this interactive tool to create dynamic drawings on isometric dot paper.
- Draw figures using edges, faces, or cubes.
- You can shift, rotate, color, decompose, and view in 2-D or 3-D.

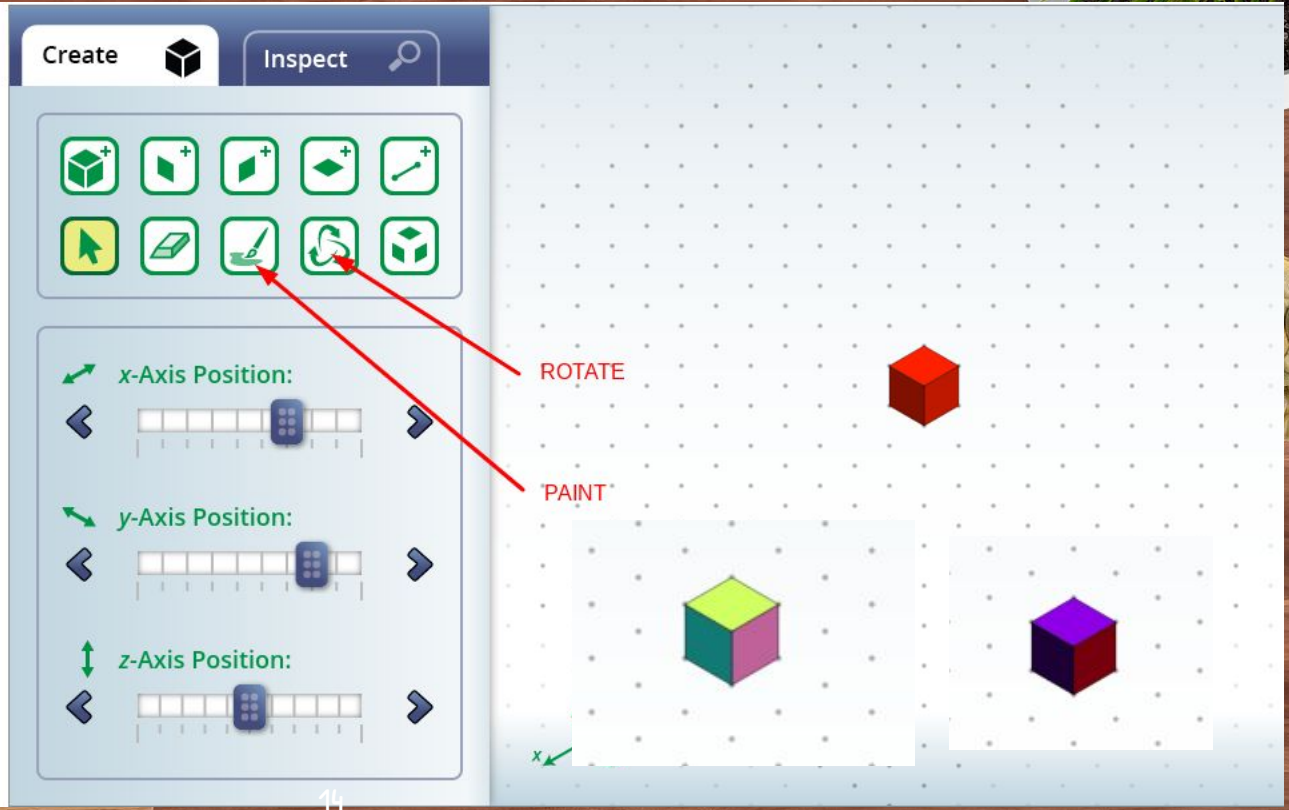
Note This interactive is optimized for your desktop and tablet.

- Click on Create cube
- Place it on drawing area



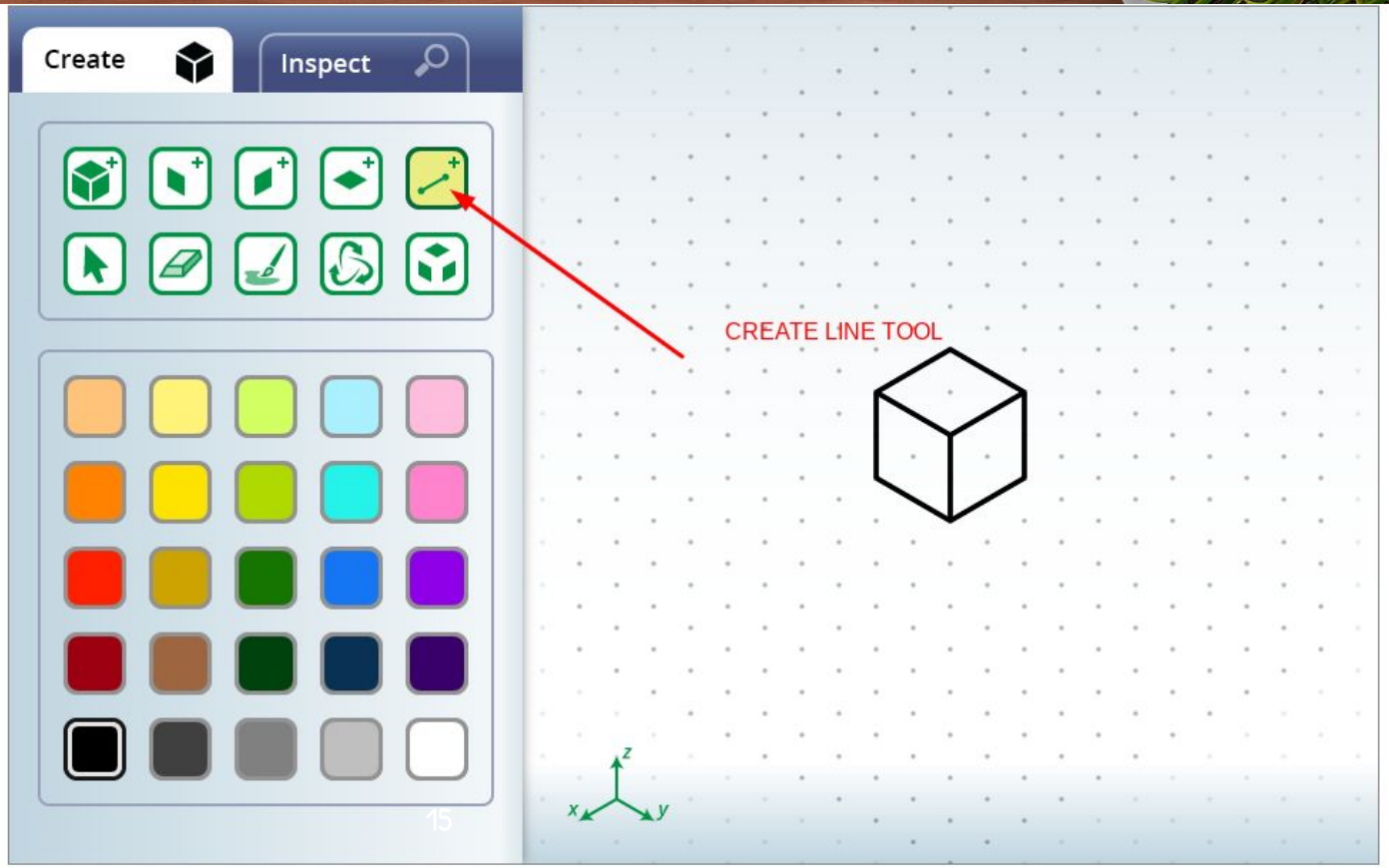
Activity 1(a) Exploring faces of a Cube

- Use rotate tool to see faces
- Use paint tool for colouring faces



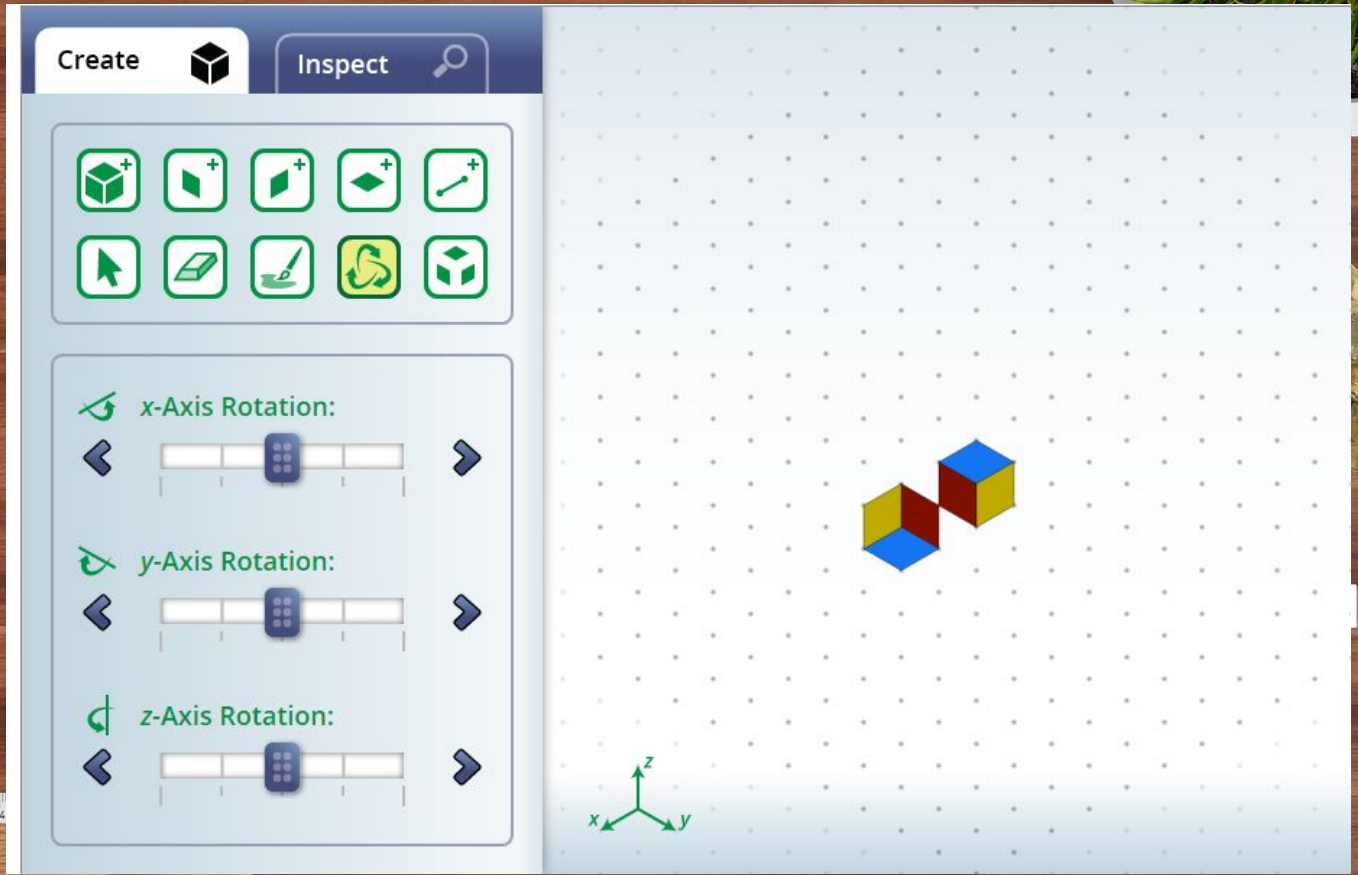
Activity 1(b) Drawing isometric sketch

- Use line tool for drawing a cube



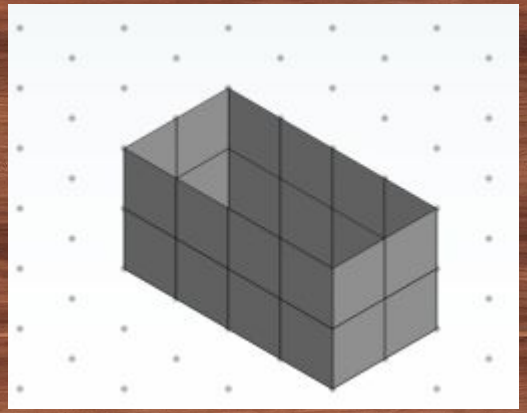
Activity 1(d) Making a cube

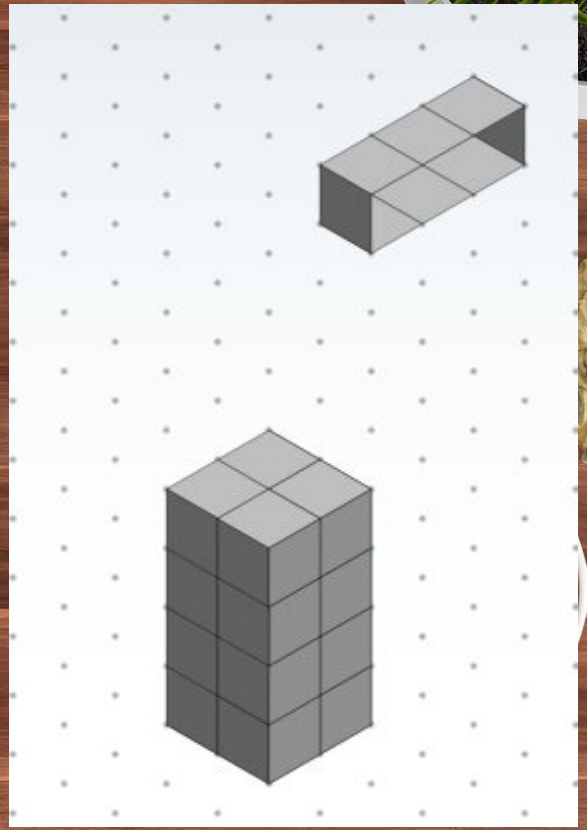
- Use Create x face tool
- Use Create y face tool
- Use Create z face tool
- Use Paint tool
- Use Rotate tool



Activity 1(d) using face tool

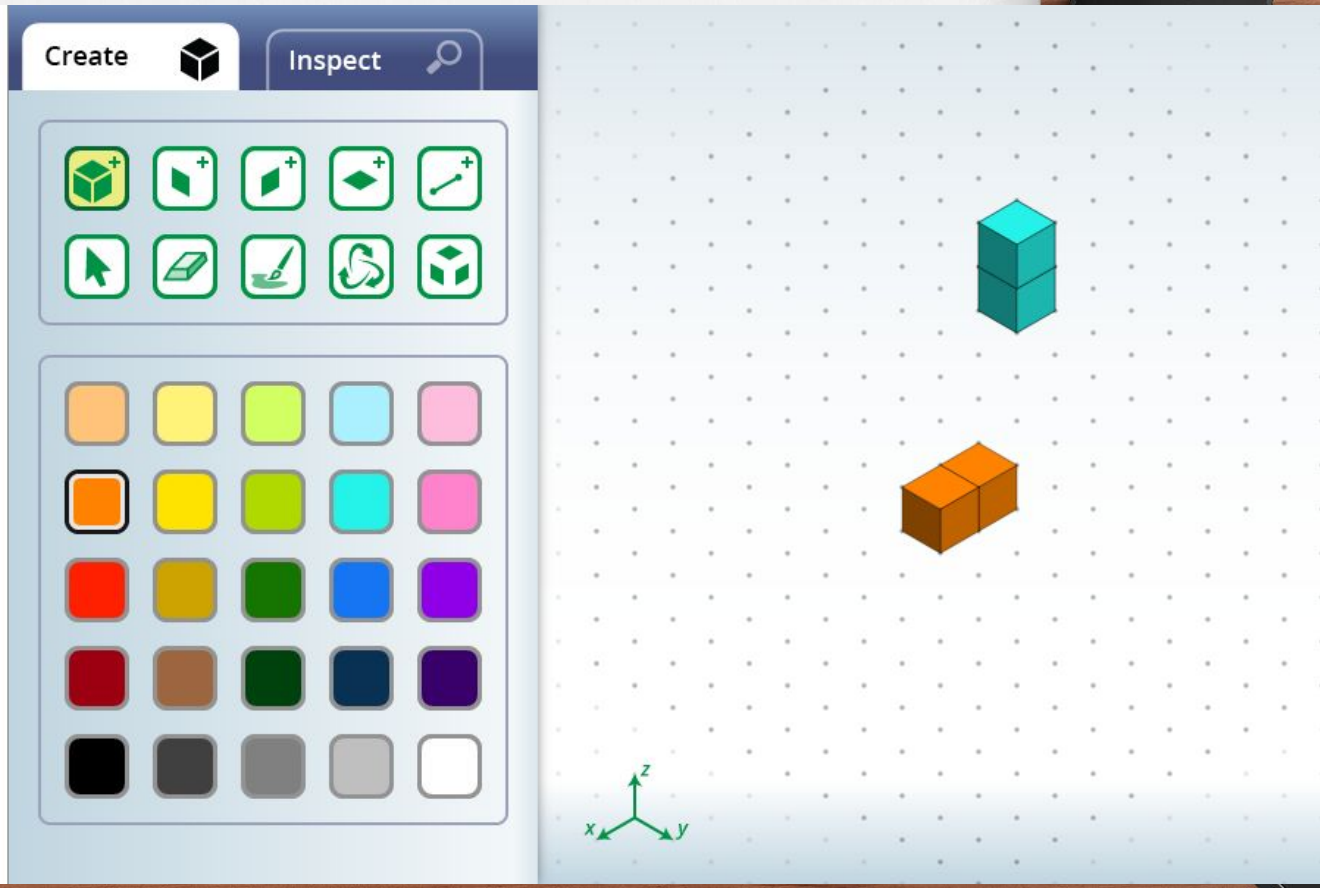
- Use Create x face tool
- Use Create y face tool
- Use Create z face tool
- Use Paint tool
- Use Rotate tool





Activity 2 Exploring two Cube adjacent to each other

- Use Create cube tool
- Place cubes adjacent to each other



Thinking/Observation based Questions

- What is the new shape obtained?
- What is the surface area?
- What is the volume?

WS3 Q8 Let us solve together...

Two cubes each of side 4 cm are joined end to end. Find the surface area of the resulting cuboid.

Class VIII Maths Ch Mensuration

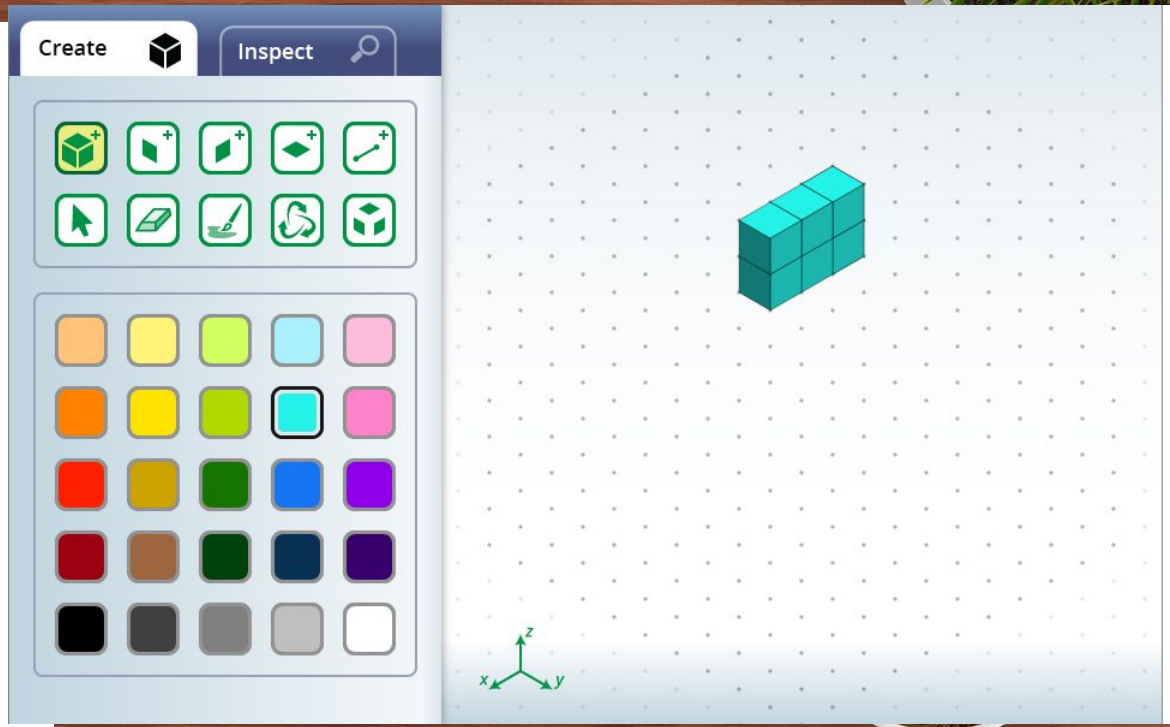
Playing with unit cubes

EXPLORING CUBES AND CUBOIDS

Interactive

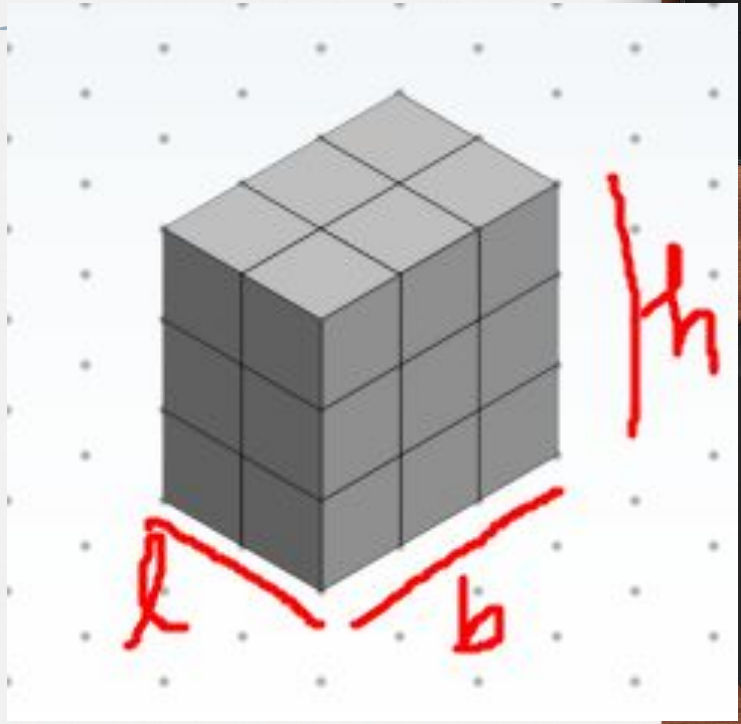
Activity 3 Playing with unit cubes

- Use Create cube tool
- How many unit cubes are there?
- How many unit cubes are required to make a cuboid of size 2x3x2 ?



Activity 4 Volume with unit cubes

- Use Create cube tool
- How many unit cubes are there?
- What is the volume of shape obtained?



Activity 4 Different views of an object

- Use Create cube tool
- Use inspect tool

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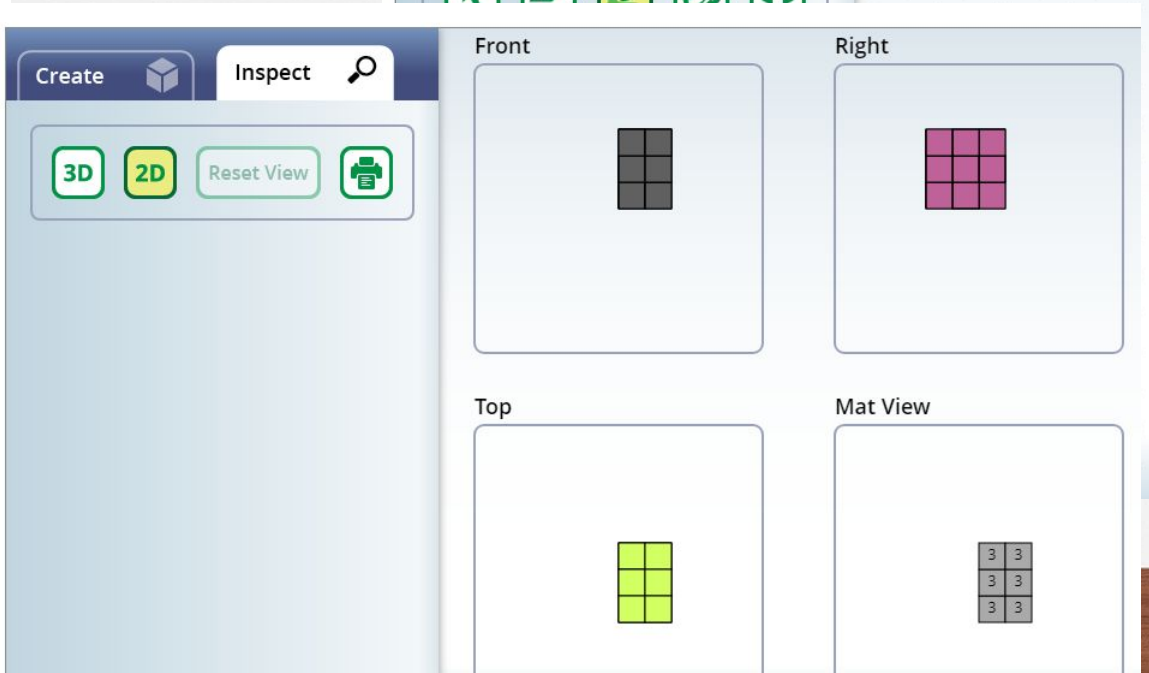
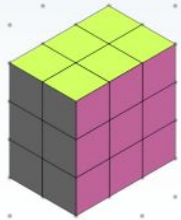
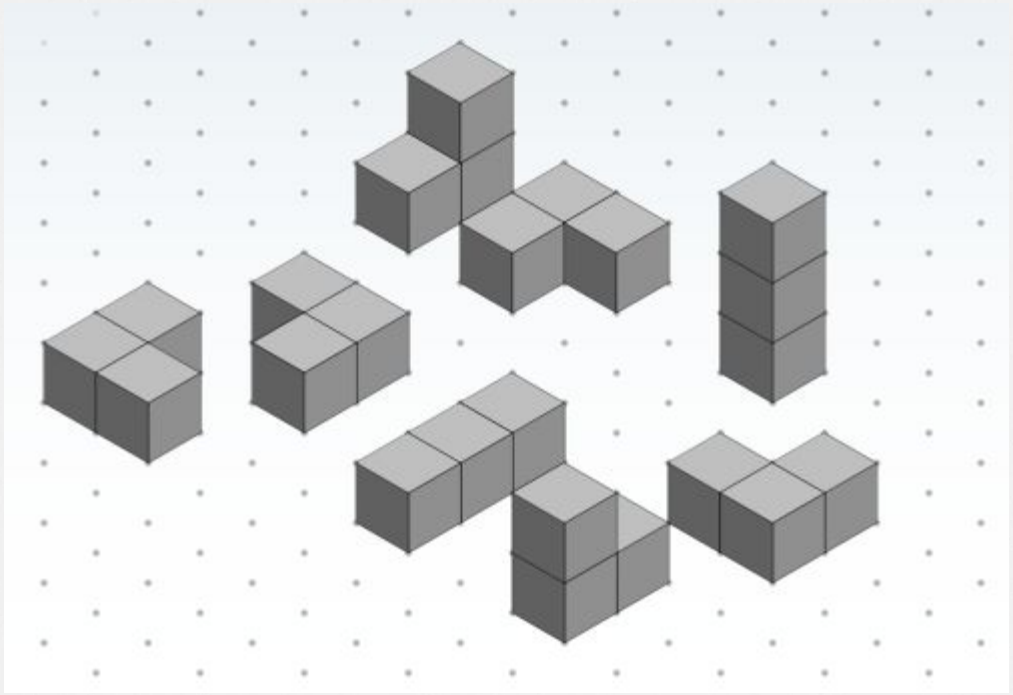




Activity 5 Self Exploration with unit cubes

- Use Create cube tool



Teaching Ideas of using Isometric drawing tool

- Use it in a synchronous mode while teaching online. Have a creative discussion with children.
- Children can create 3D shapes and share their work.
- Create worksheets on counting unit cubes/missing using cubes/different view of an object
- Use the snapshots for assessment via Google form

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Note: Applications may not be optimized for mobile devices and may require modified browser settings or the download of plugins.



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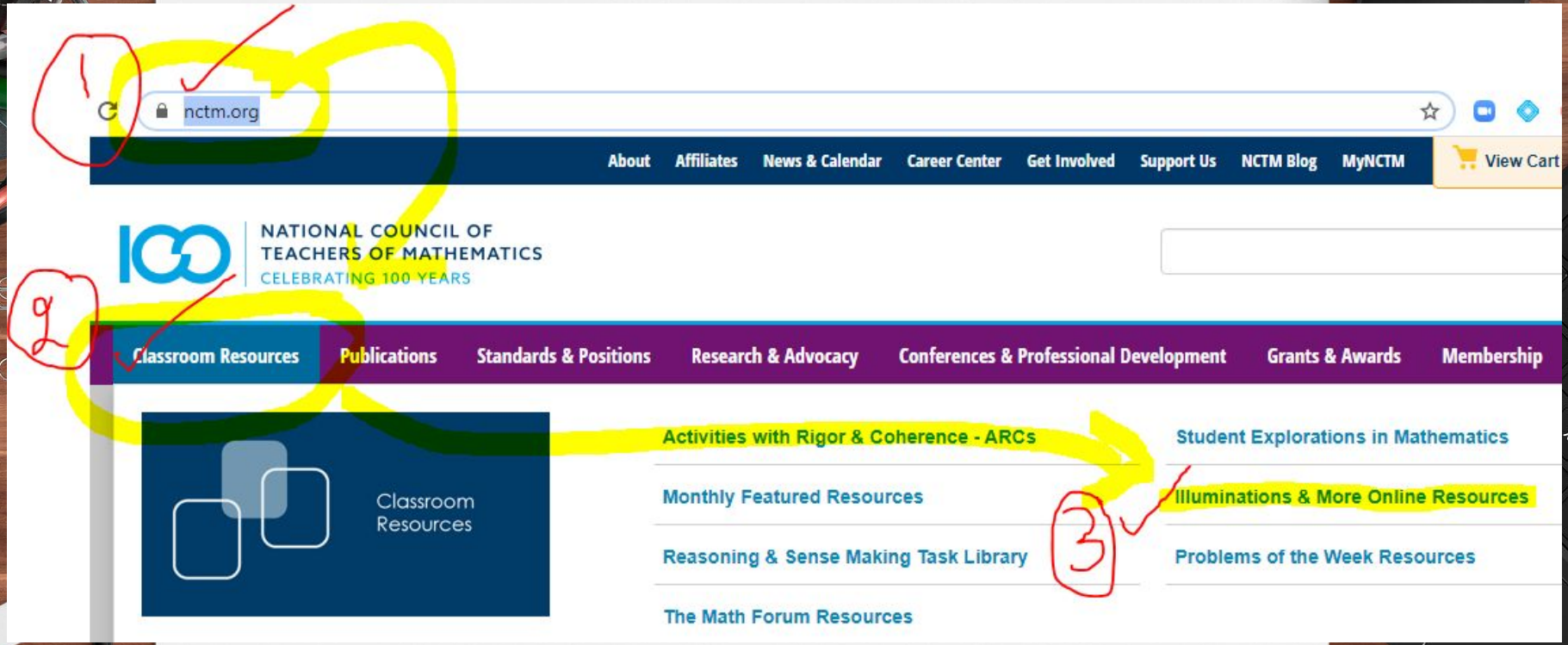
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Isometric Drawing Tool- Let us explore it live

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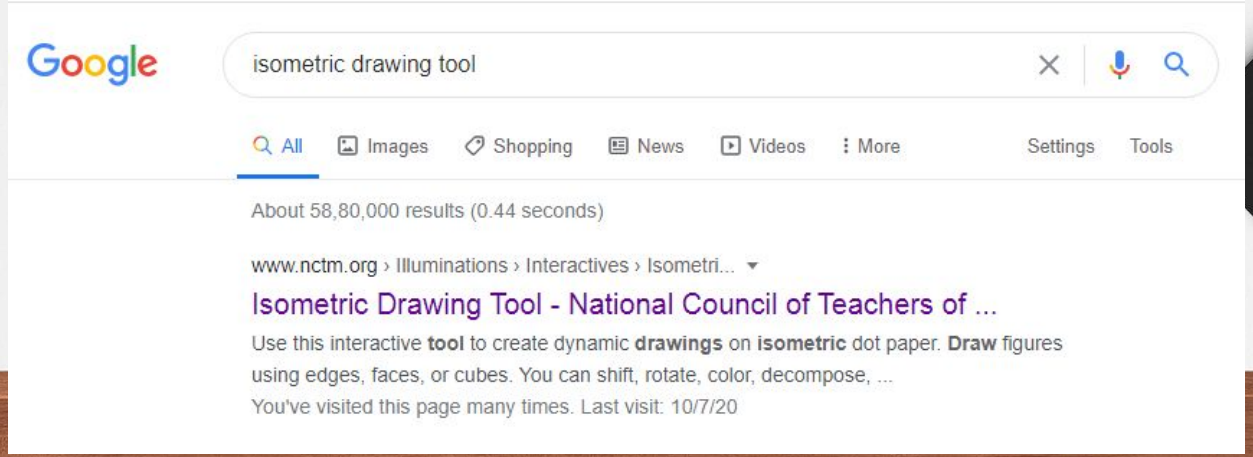

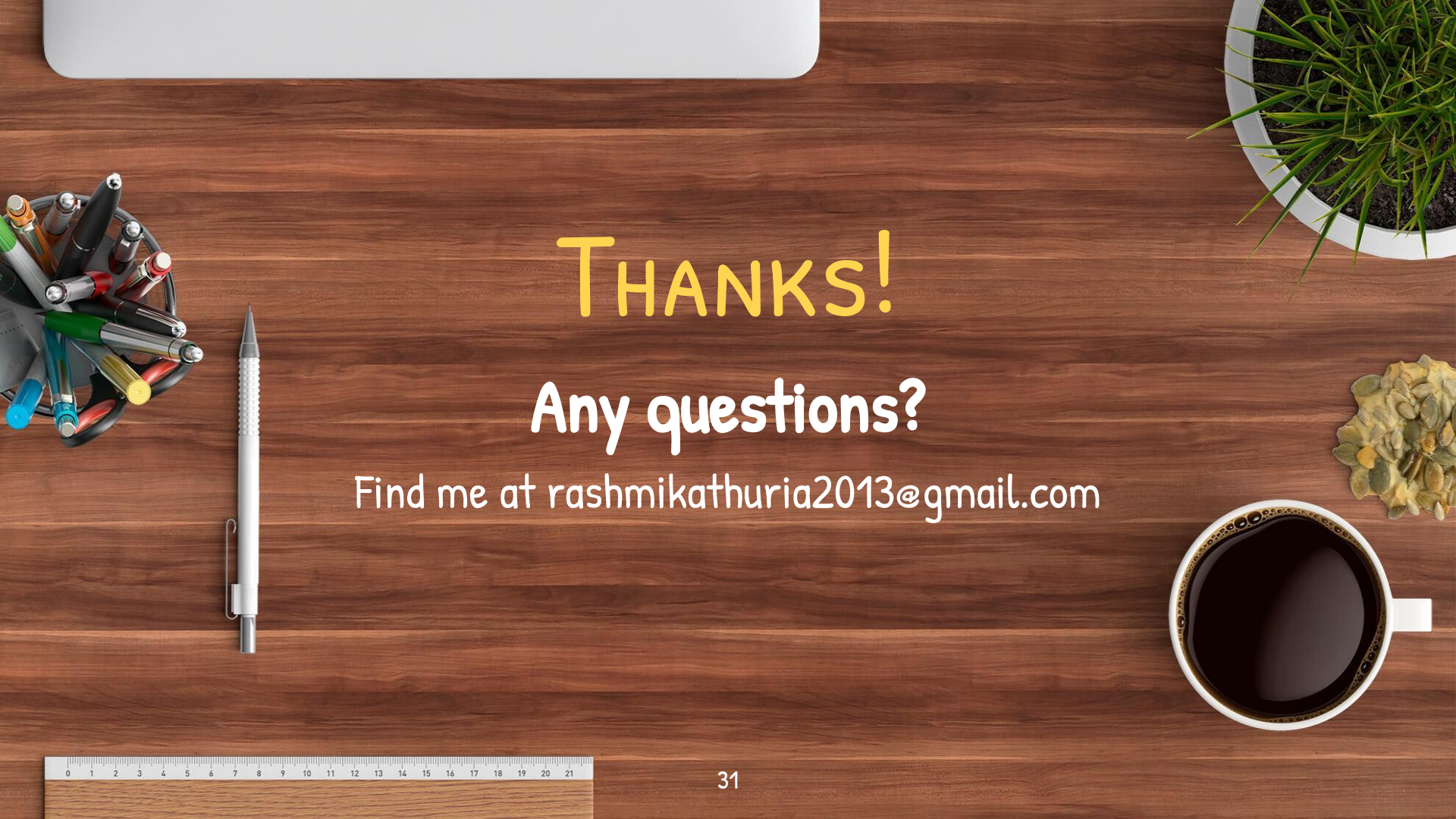
Thanks!
Any questions?
Find me at rashmikathuria2013@gmail.com

Credits

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