



The Talking Vegetables

A sneak peek into the world of "Visualising Solid Shapes"

Graphic Novel

Mathematics - Class VII

Chapter 15: Visualising Solid Shapes

(Art Integrated Learning)



Delhi Public School, Sec-45, Gurgaon

Affiliated to C.B.S.E

ACKNOWLEDGEMENT

*‘You can do what I cannot do.
I can do what you cannot do.
Together we can do great things.’*
-Mother Teresa

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To access the comic book and additional interactive digital content, download the DIKSHA app from Google Play Store on your Android smartphone or tablet and scan the QR code using DIKSHA app.

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DISCLAIMER

This is a work of fiction by Delhi Public School, Sector 45, Gurgaon. The novel is designed to motivate young learners, ignite interest and provide a better understanding of the concept. It is meant to supplement, not replace the information in the text book. The characters in this graphic novel are fictitious and any resemblance to names, characters or incidents is coincidental.

PREFACE

*‘Learning gives creativity, creativity leads to thinking,
Thinking provides knowledge, knowledge makes you great.’*

-Dr. A.P.J. Abdul Kalam

Mathematics forms an integral part of everyday life. It is an important enabler in unlocking mysteries of universe and a facilitator in problem solving. This graphic novel is an attempt to explore and visualise the learning ingrained in everyday mathematics.

The graphic novel named ‘The Talking Vegetables’ intends to bring freshness to the concept of solid shapes through day to day activities and objects used in daily life. In this novel, vegetables come to life and talk to each other, thus enabling the students to explore the two-dimensional and three-dimensional shapes. It will enable students to comprehend, visualise, analyze and appreciate the three-dimensional figures. It will also give them an insight into how three-dimensional shapes are formed

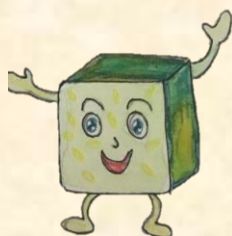
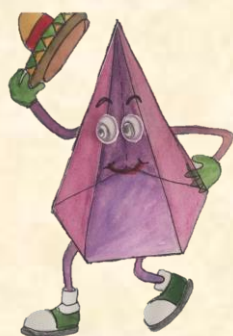
The intention of this book is to provide an interesting resource for effective teaching and learning. The novel also aims to equip students with adequate drills and practice in a fun filled manner. It also encourages self-study and inculcates independent learning. It will simulate and stimulate spatial thinking skills and develop the power of visualisation, a skill of great relevance in the 21st century.

CLASS VII

VISUALISING SOLID SHAPES

LEARNING OUTCOMES

- To explore the two-dimensional and three-dimensional shapes.
- To differentiate between a flat shape and a solid shape.
- To recapitulate and use vocabulary of faces, vertices and edges and thus understand how 3D shapes are formed.
- To identify, comprehend, visualise, analyze and appreciate the three-dimensional figures in the environment.
- To simulate and stimulate spatial thinking skills.
- To develop the power of visualisation, a skill of great relevance in the 21st century.



STORYBOARD

A SNEAK PEEK INTO THE
WORLD OF SHAPES



PLANE FIGURES
(2D SHAPES)
FLAT SHAPES

SOLID FIGURES
(3D SHAPES)
OCCUPIES SPACE

TWO DIMENSIONS
LENGTH AND BREADTH

THREE DIMENSIONS
LENGTH, BREADTH
AND HEIGHT



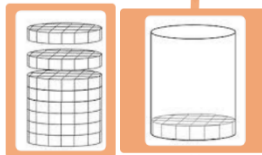
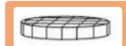
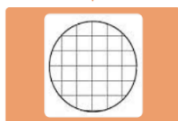
SQUARE



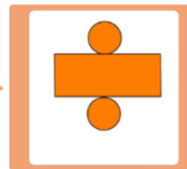
CUBE

CIRCLE
(A CURVED
SURFACE)

CYLINDER
(2 EDGES, 3 FACES
AND NO VERTEX)



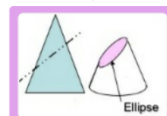
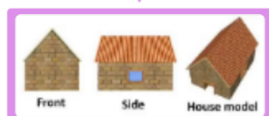
NET OF
CYLINDER



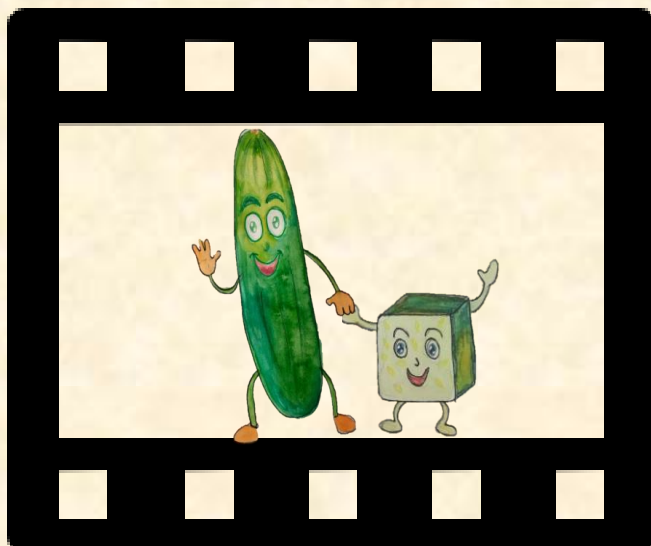
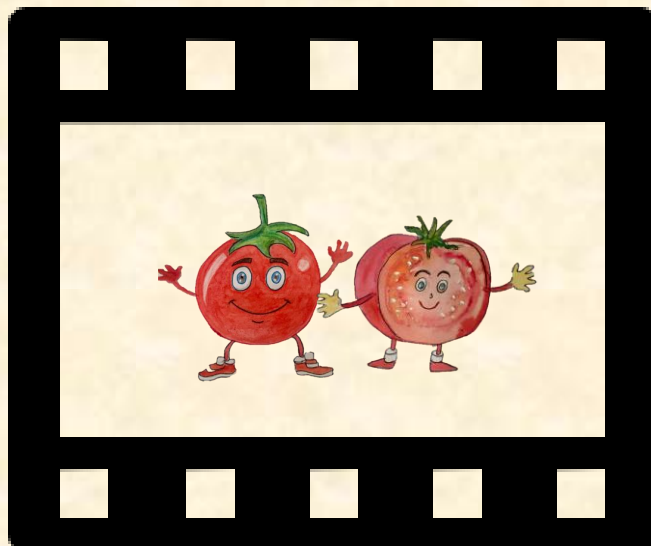
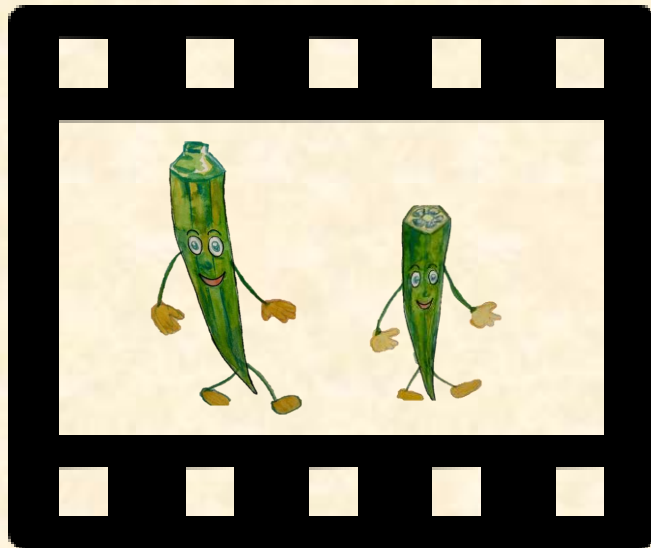
VIEW SECTIONS OF SOLIDS

VIEWS FROM DIFFERENT
ANGLES

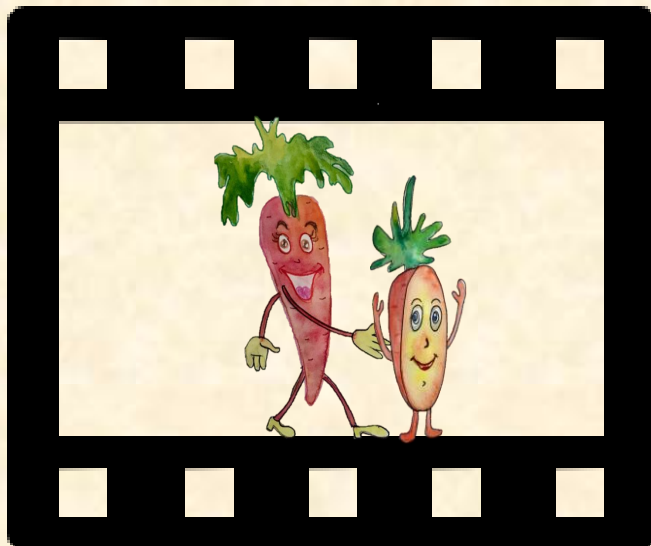
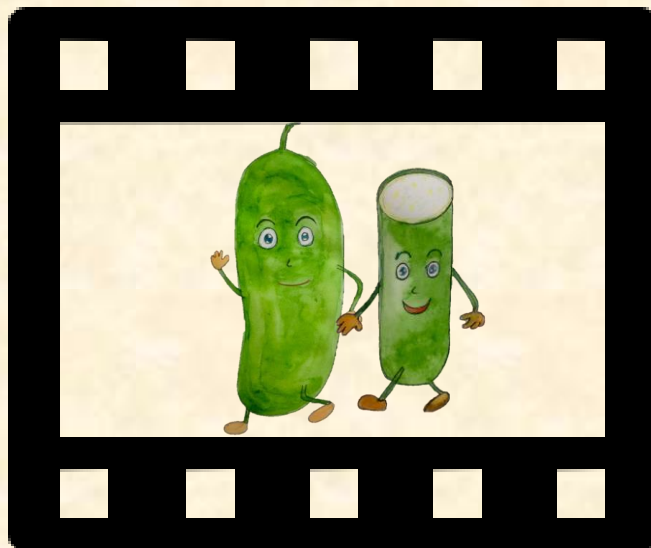
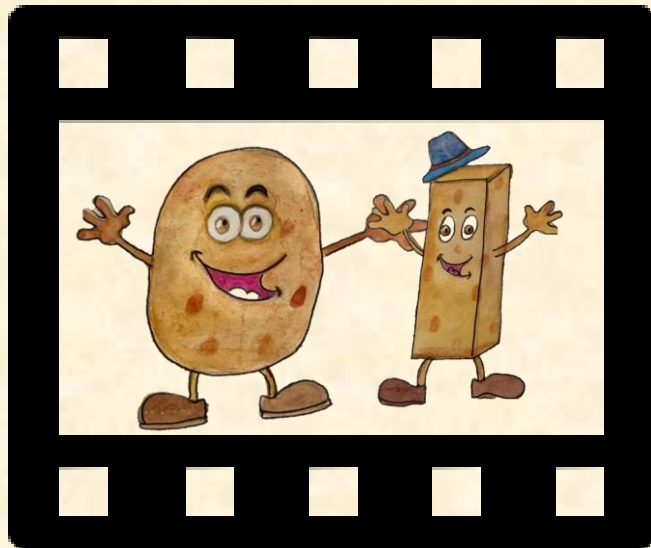
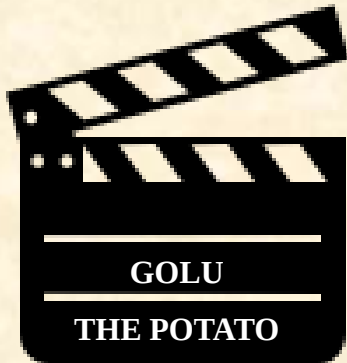
SLICING



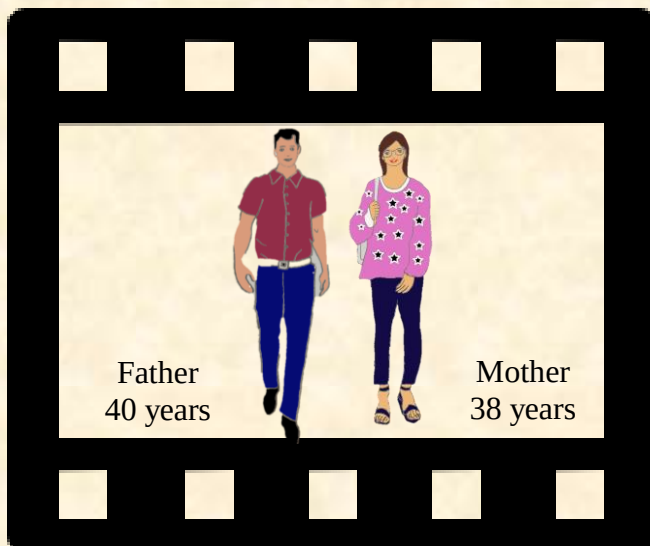
CHARACTERS



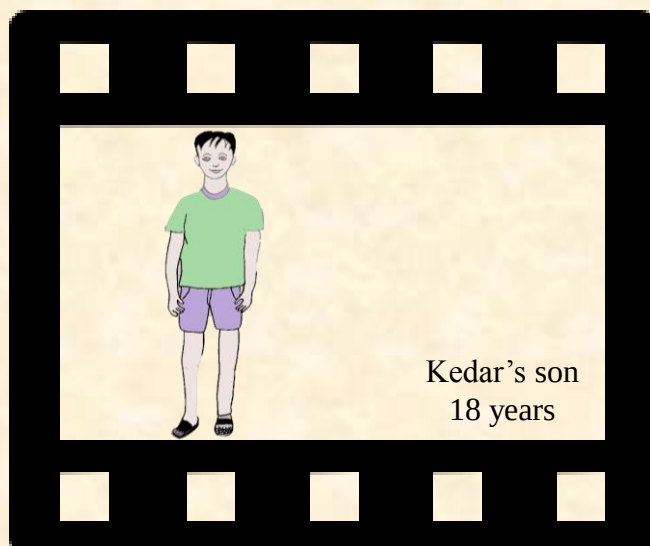
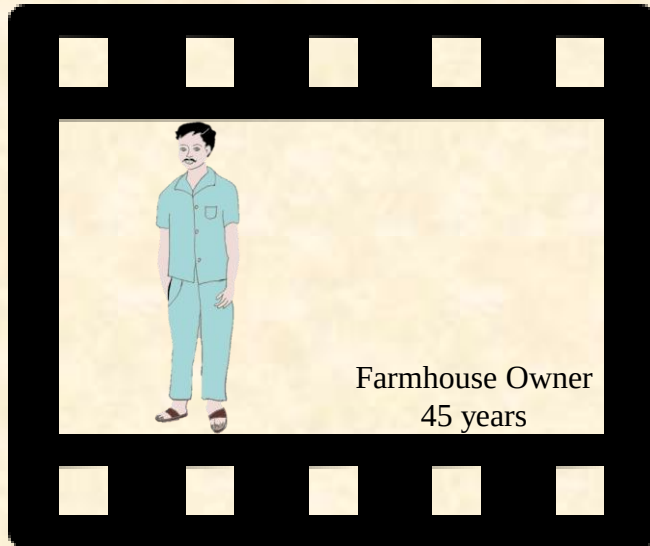
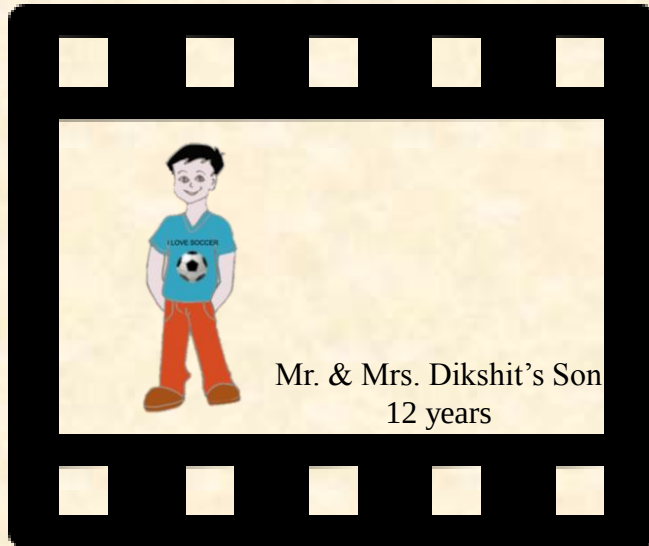
CHARACTERS



CHARACTERS



CHARACTERS



CHAPTER 1:WEEKEND FUN

Meet the Dikshit family.

Mr. Dikshit is busy on his phone while Mrs. Dikshit is sitting with her laptop and their son, Jai is busy with his tablet.



I'm getting bored. Let's go out somewhere, Mom.



Even I need a break.





How about a DIGITAL DETOX?
No phones, no laptops, no iPad...time to
recharge the battery of our body!

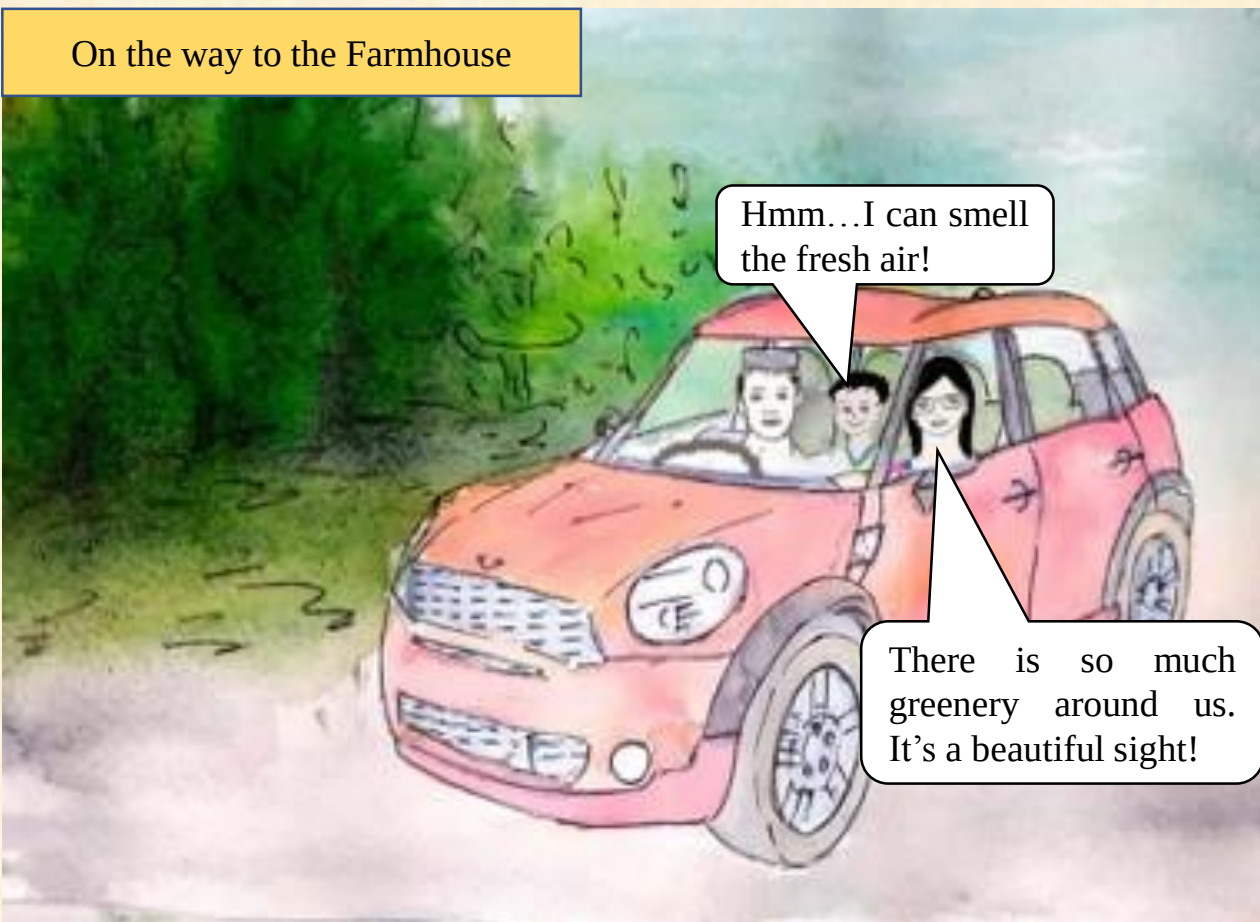


Let's spend this
weekend on a
farmhouse that I have
heard a lot about.

Oh come on!
Let's give it a try.
I'm sure we will
have a great time.

No mobile/ no iPad....
Oh no! What will we
do then?

On the way to the Farmhouse





Let's stop at the next store and pick up something to eat.

Yes Mom ,
that's a good idea!

W E L C O M E



THE CONFECTIONERY SHOP





On reaching the farmhouse...



The Dikshit family being served the welcome drink.





So delicious and cool!
What is it, Mom?



It's so refreshing. Is it
pineapple juice?



No, it's a mix of aloe
vera and amla.

I never thought
amla could be
so delicious!

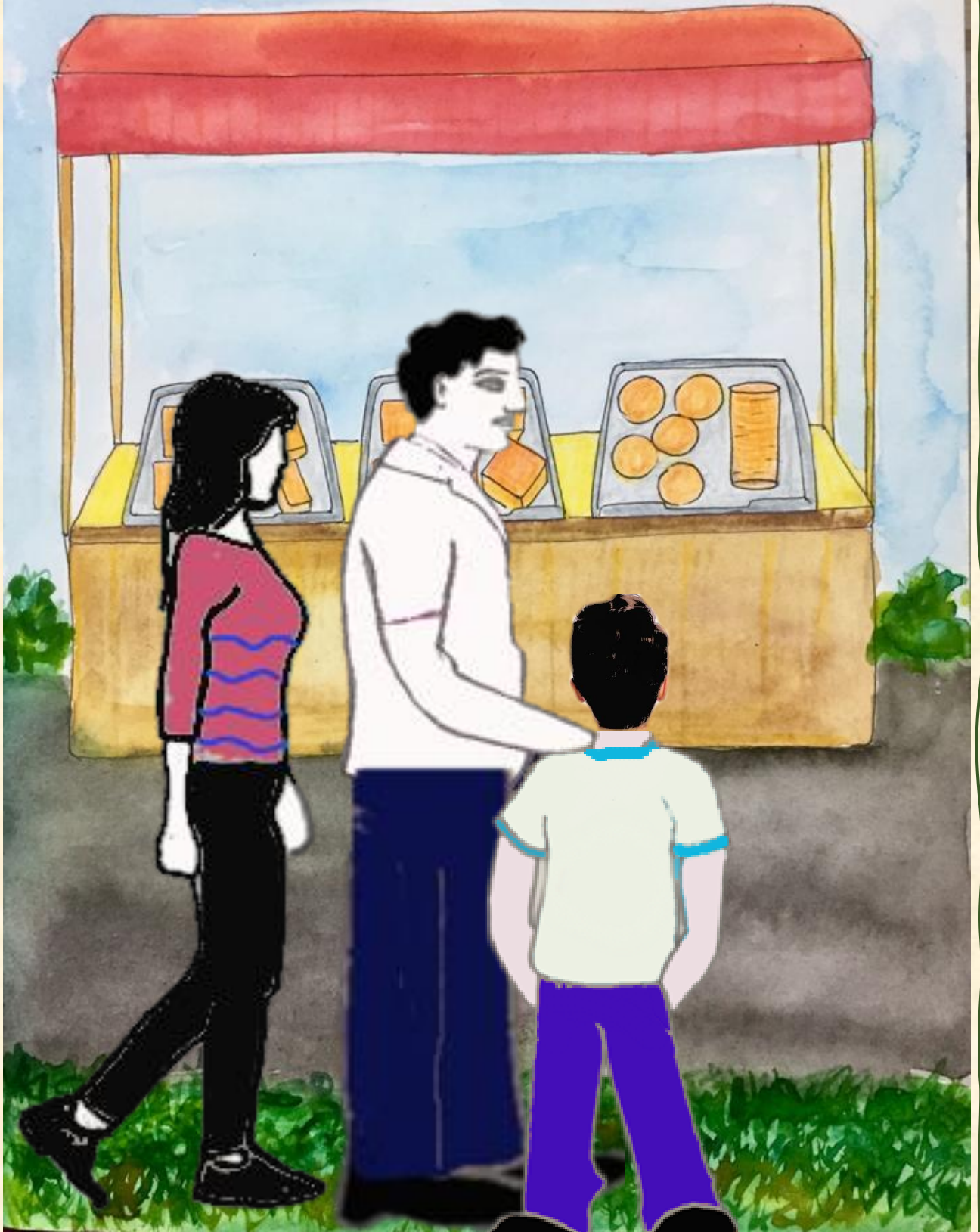


This juice will detox
your body.





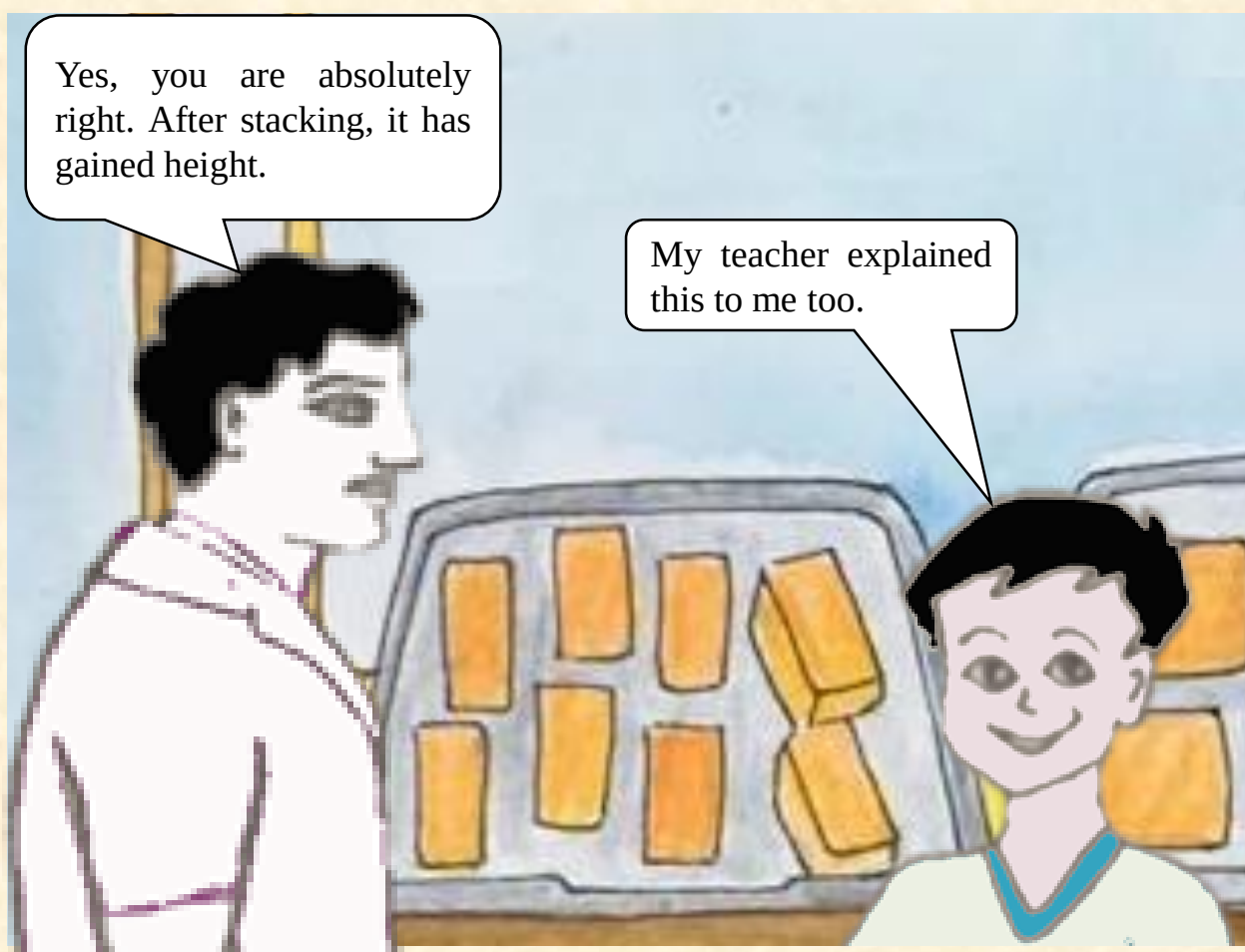
The Dikshit family going towards their room.

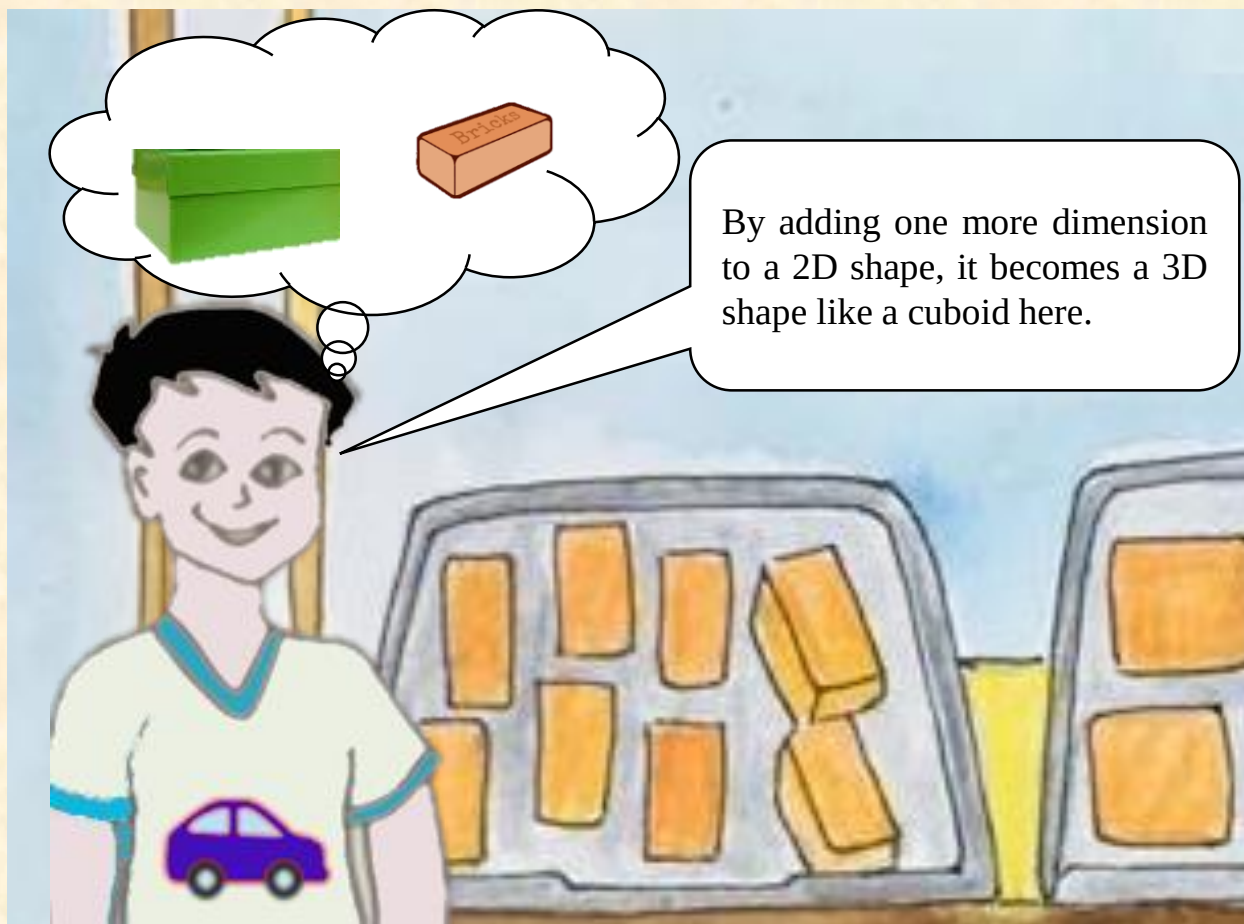


What is it over there, Dad?

These are one of your favourite candies, Aam Papad.

Wow! Aam Papad!





By adding one more dimension to a 2D shape, it becomes a 3D shape like a cuboid here.



Wow! This looks like my Rubik's cube.



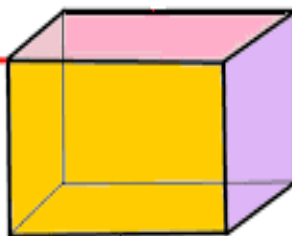
That's nice. Can you name the building blocks of a Rubik's cube?

I remember! They are faces, edges and vertices.

Fantastic! Can you explain what they are?

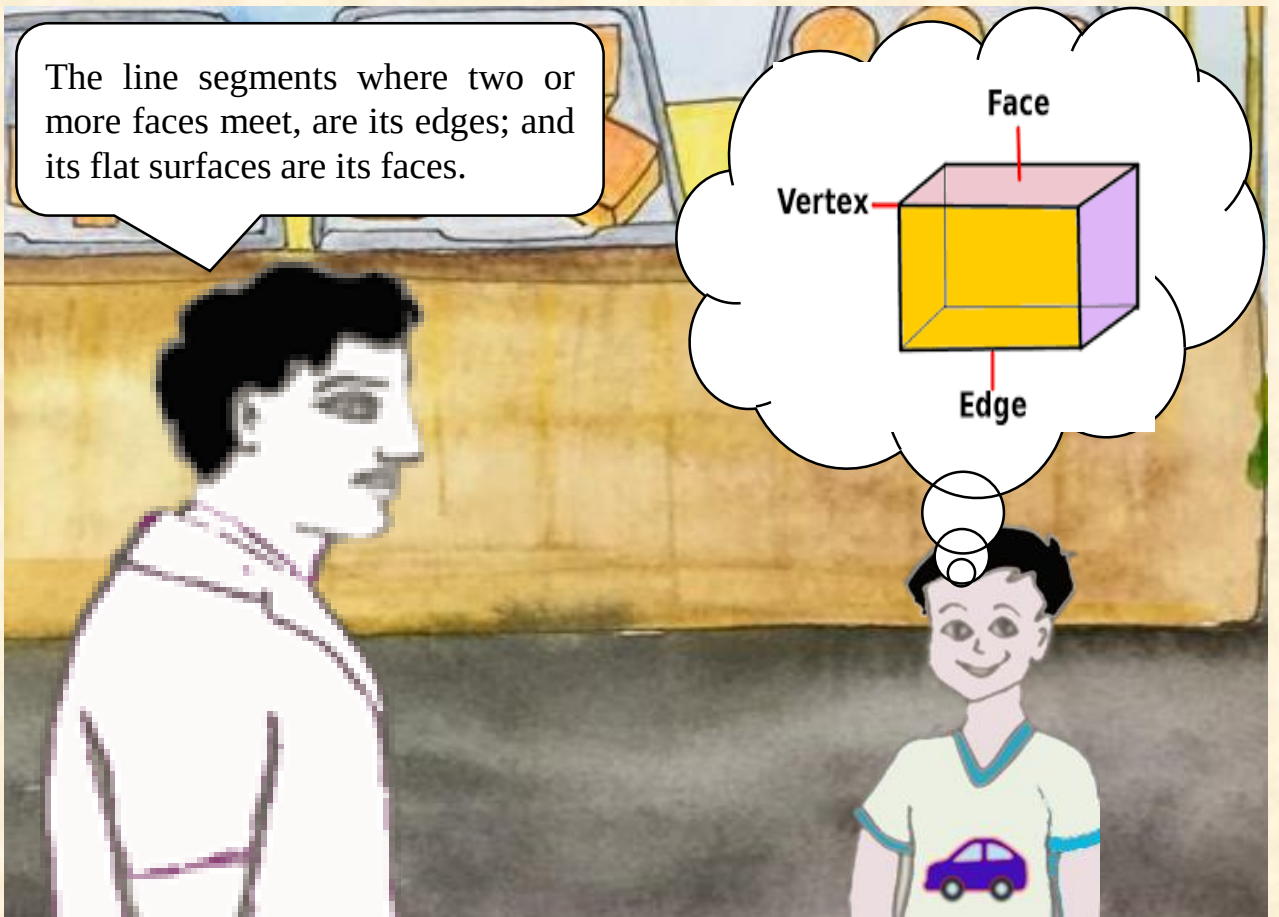
Corners are called vertices which is a plural of vertex.

Vertex

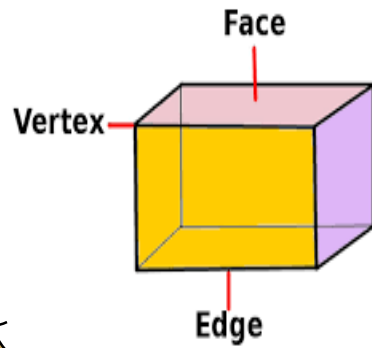


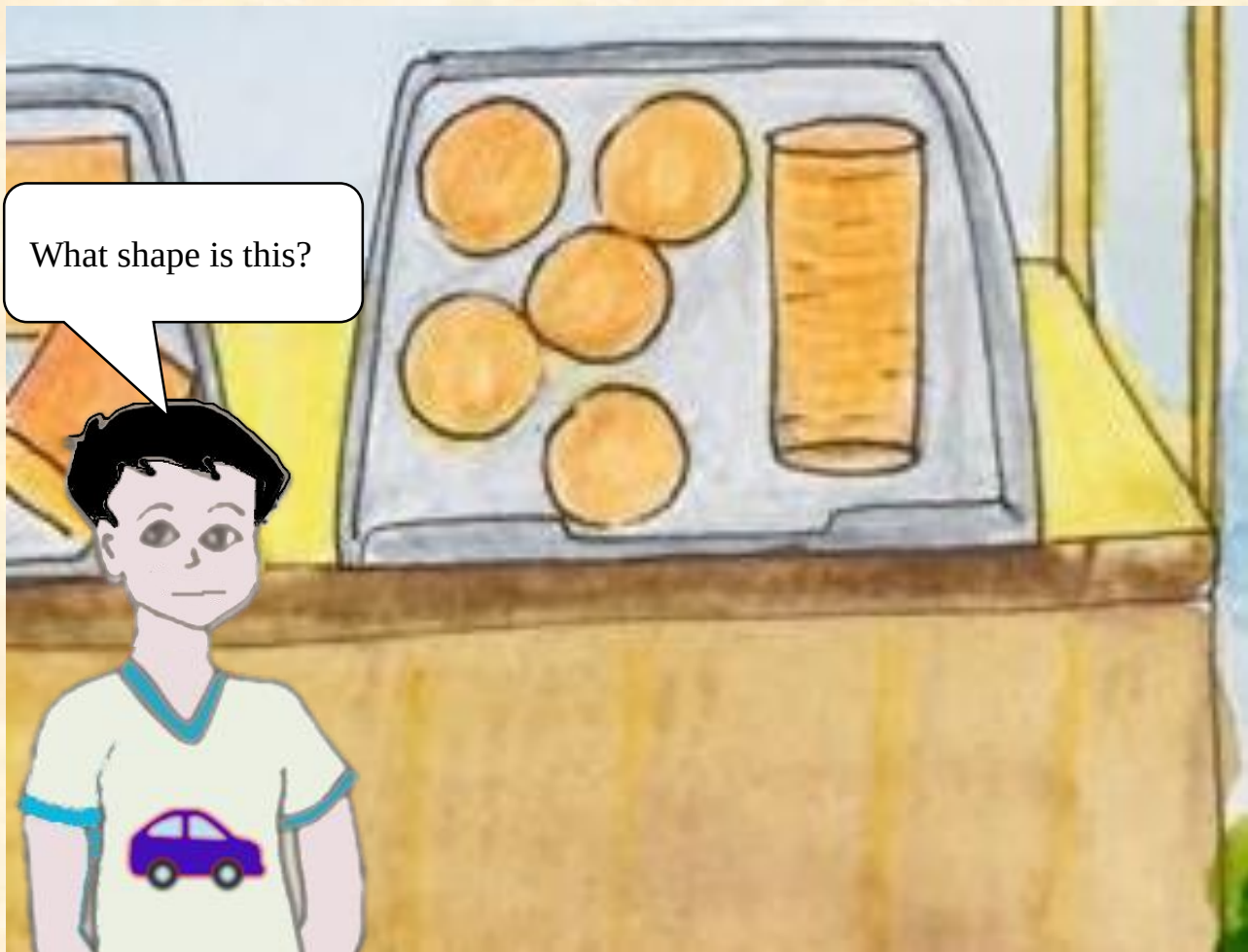


I don't seem to recollect the other two.

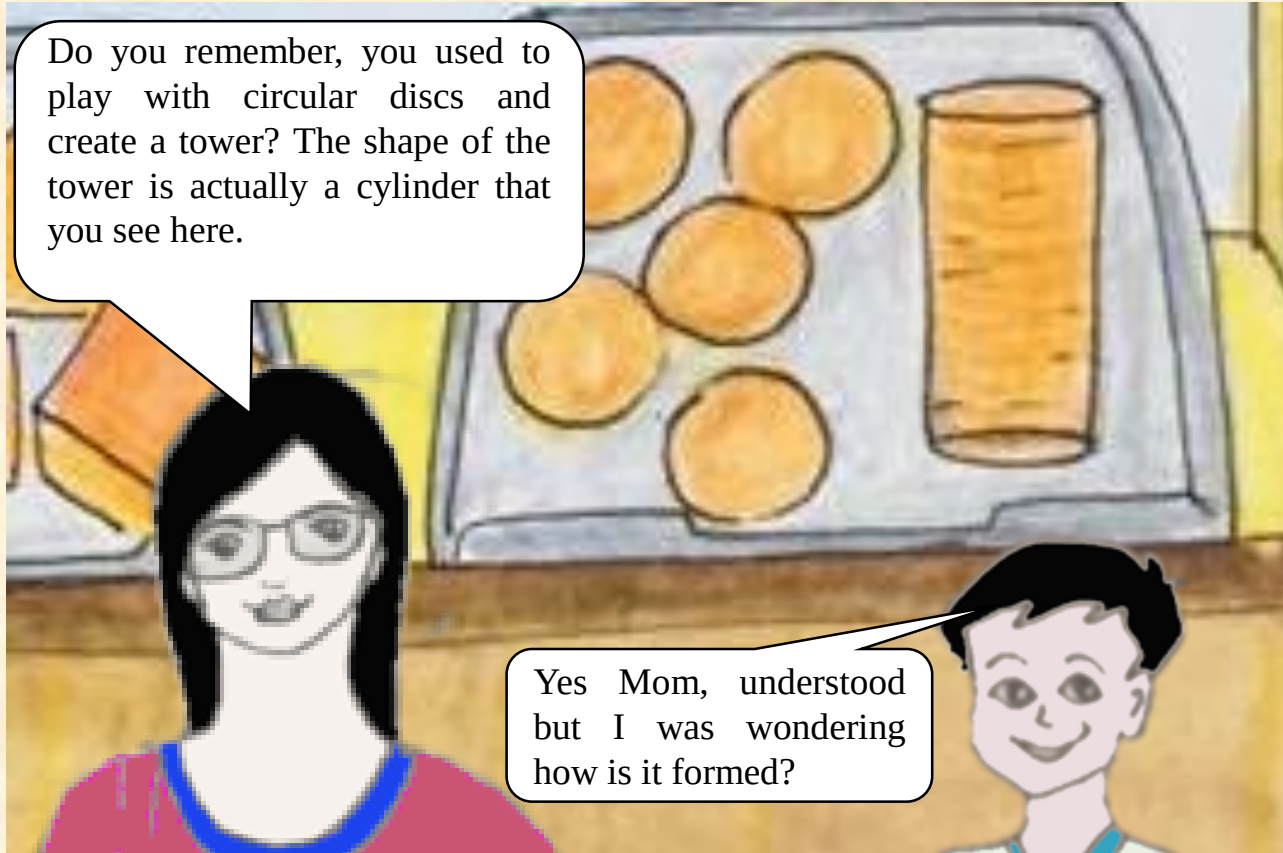


The line segments where two or more faces meet, are its edges; and its flat surfaces are its faces.





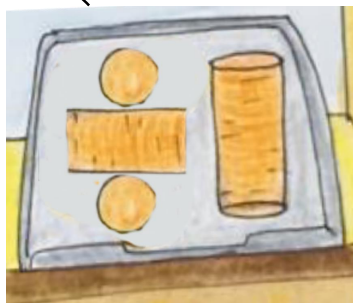
What shape is this?



Do you remember, you used to play with circular discs and create a tower? The shape of the tower is actually a cylinder that you see here.

Yes Mom, understood but I was wondering how is it formed?

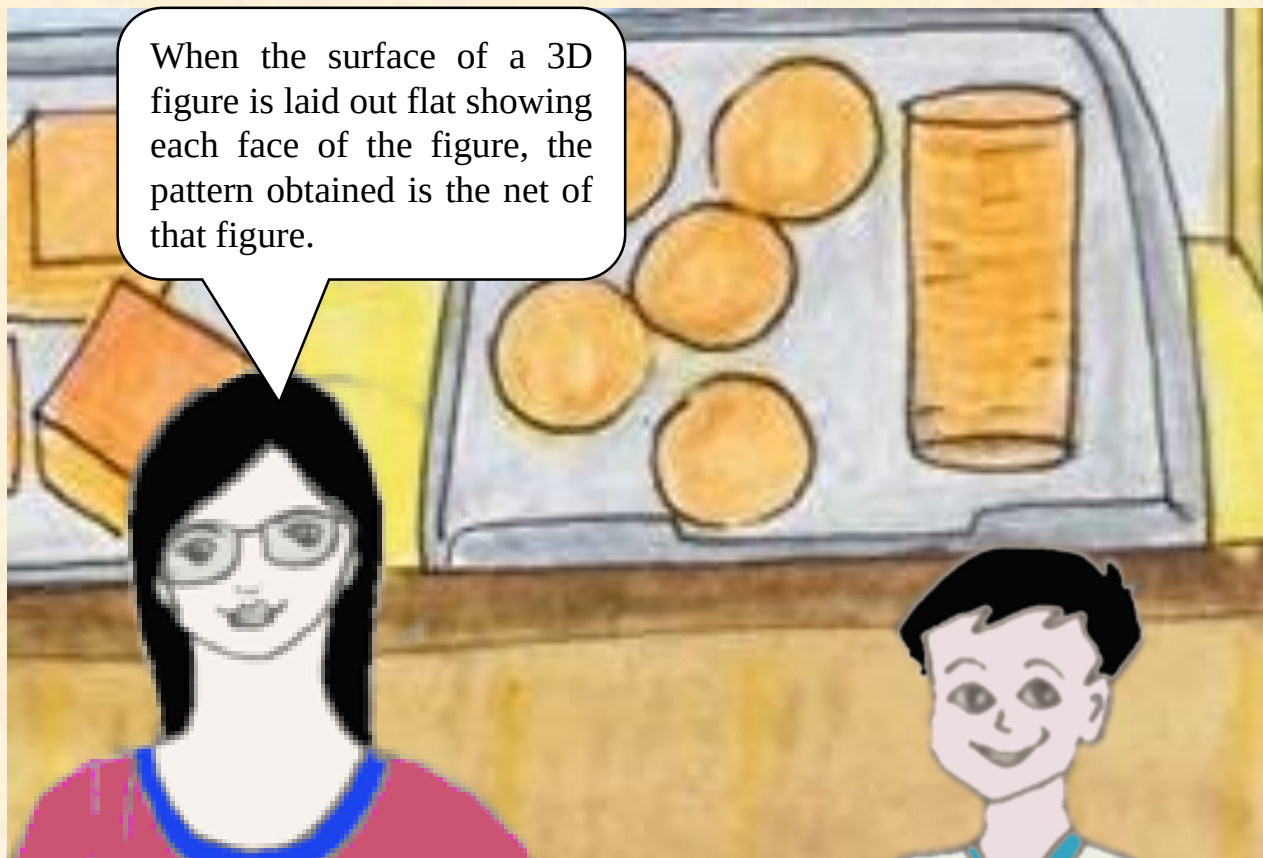
Imagine there are two circular discs and a rectangular sheet lying on this tray.



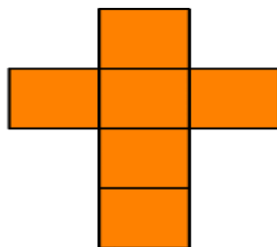
If I roll the rectangular sheet of aam papad along its length and cover the two ends with these circular discs, we will get a cylinder.



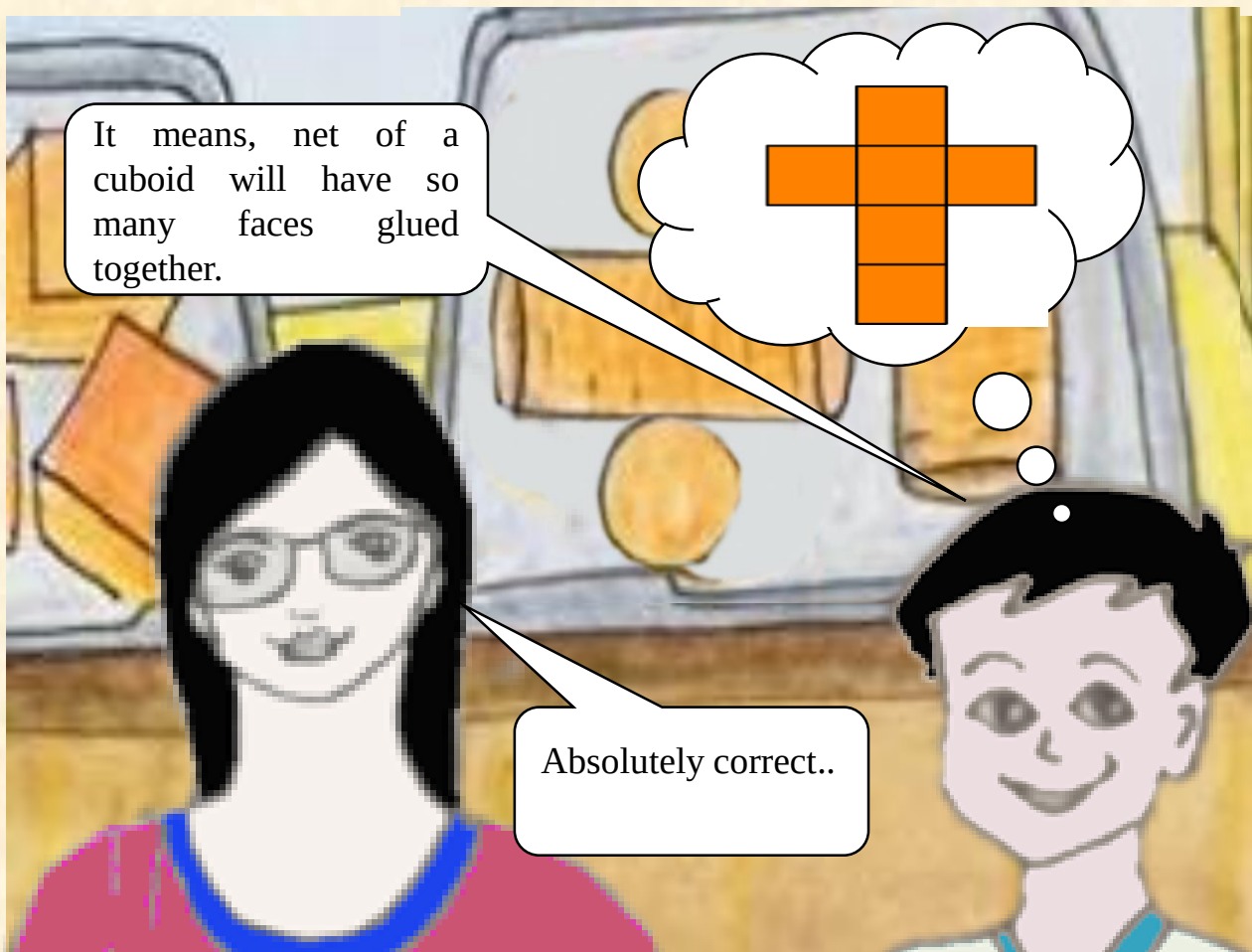
When the surface of a 3D figure is laid out flat showing each face of the figure, the pattern obtained is the net of that figure.



It means, net of a cuboid will have so many faces glued together.



Absolutely correct..



Lunch time



Hmmm... it's not bad.



Yes, it's delicious. I think it's a mix of vegetables.





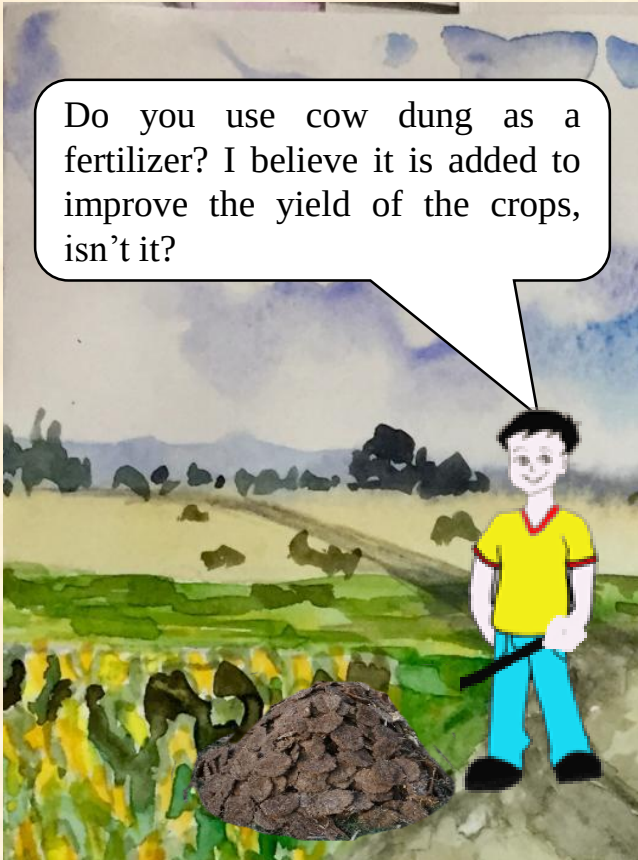


Sure. Let's go.



Ugh! What is this?

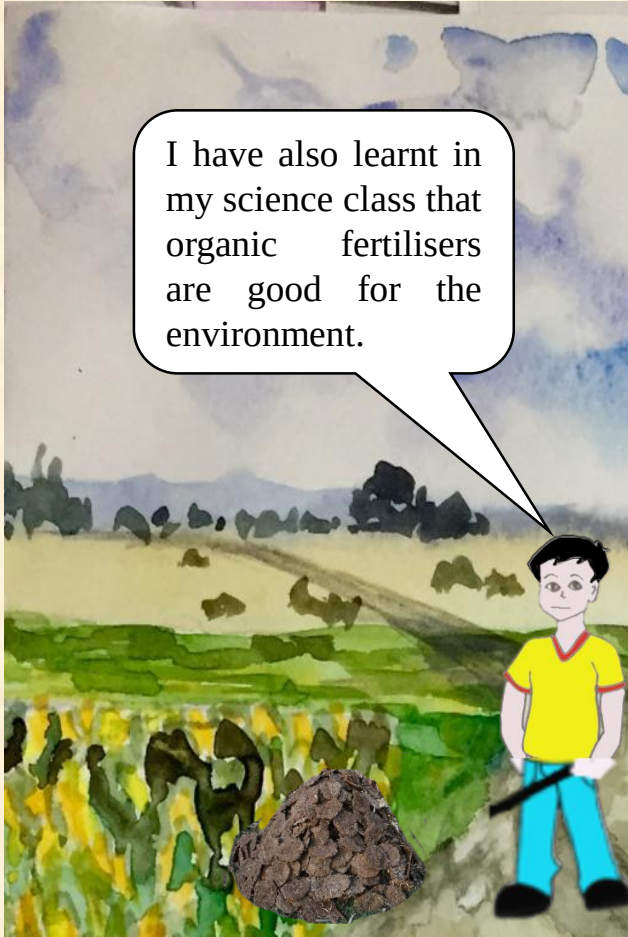
This is cow dung and is used as natural manure in our fields and it is chemical free too.



Do you use cow dung as a fertilizer? I believe it is added to improve the yield of the crops, isn't it?



Yes, we do use cow dung manure for plants as it is an organic fertilizer.



I have also learnt in my science class that organic fertilisers are good for the environment.



Absolutely! Chemical fertilisers kill the microorganisms in the soil which help in making the soil fertile.



There is geometry in
the humming of the strings,
there is **music** in the spacing
of the spheres.

-**Pythagoras**

ACTIVITY 1



Identify shape traced from solid

Color the correct answer.

From this shape can you trace
a circle ?



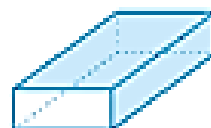
yes

or

no

Color the correct answer.

From this shape can you trace
a square ?

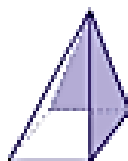


yes

or

no

From this shape can you trace
a rectangle ?

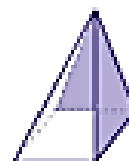


yes

or

no

From this shape can you trace
a square ?

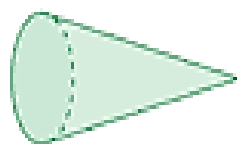


yes

or

no

From this shape can you trace
a circle ?

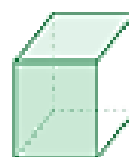


yes

or

no

From this shape can you trace
a square ?



yes

or

no

From this shape can you trace
a triangle ?

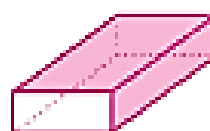


yes

or

no

From this shape can you trace
a rectangle ?



yes

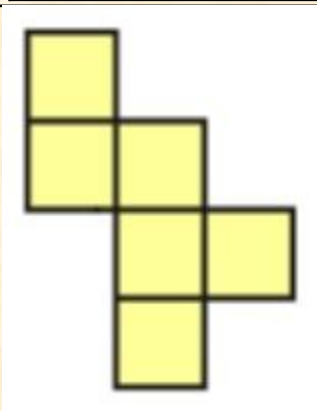
or

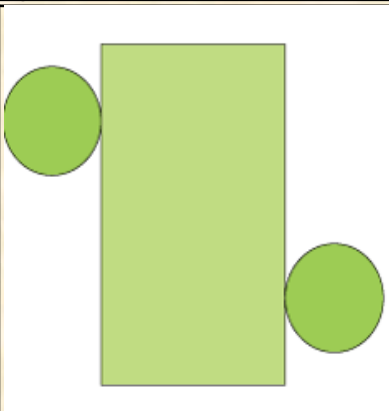
no

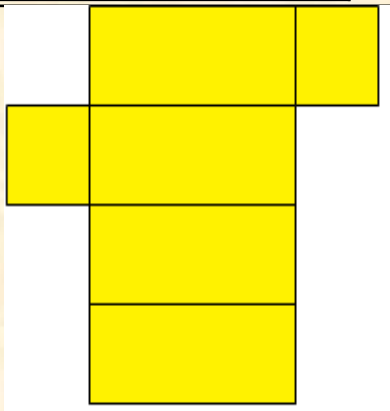
ACTIVITY 2: MATCH THE NETS

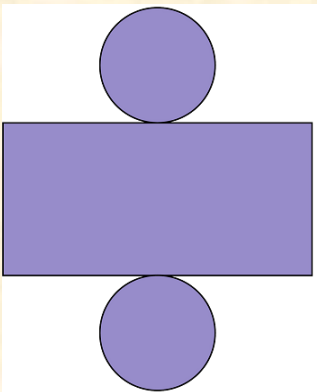
Label each net correctly

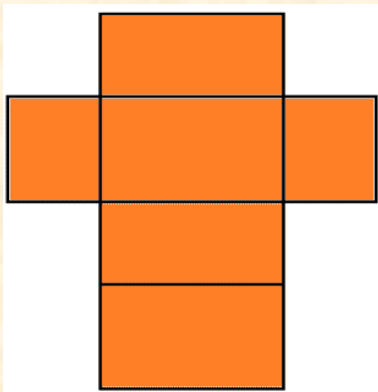
Cube	Cuboid	Cylinder
------	--------	----------

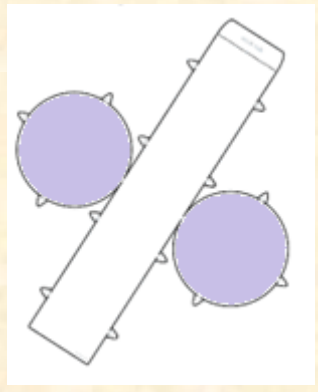


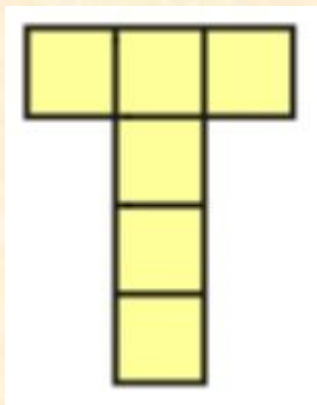


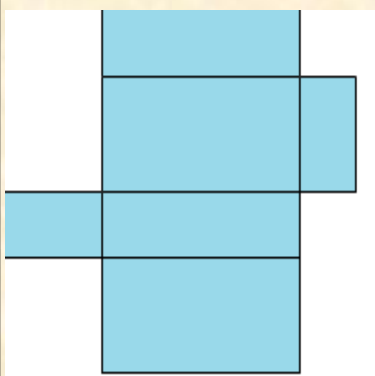


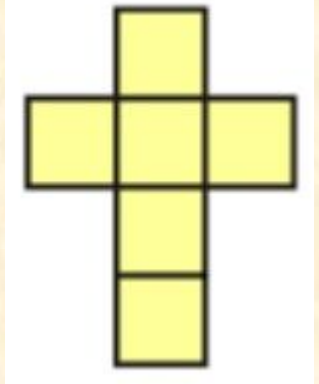












CHAPTER 2: EXPLORING THE DREAMLAND



After returning late in the evening...

What an exciting day! It's so amazing. Vegetables have such varied shapes and colours. It's a real wonder.



In his dreams...



Such lovely weather!
Oh, could it be any better?
Let us sing and dance
Till we have the chance!
As we bloom and blossom
And sprout and grow;
We thank our guard - the
Scarecrow.





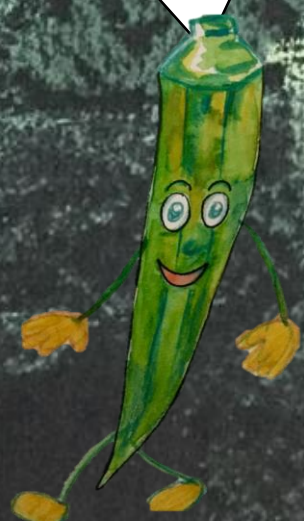
Hey buddy! Aren't you enjoying the weather? Come let us dance together.



The weather is nice and pure.
But about dancing I am not so sure
How I wish I were slender like you.
But alas, I am short and stout.



BOOHOO!!

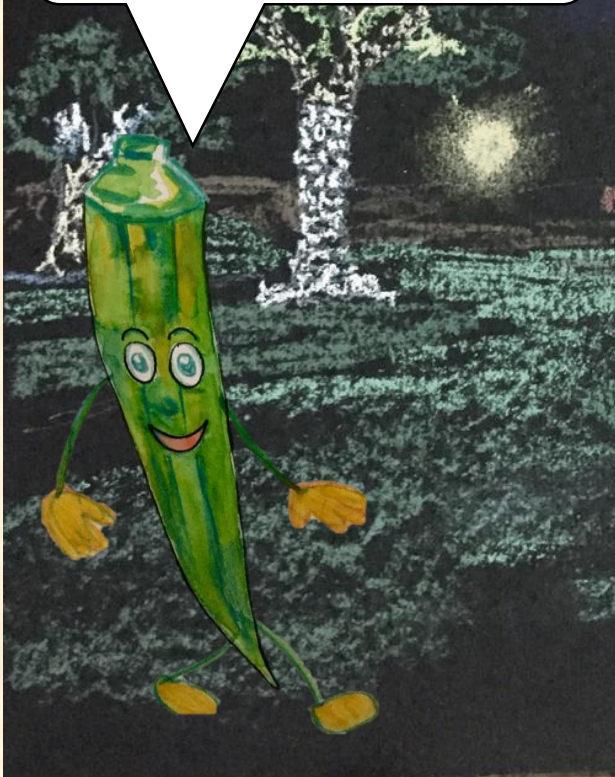


You are special, you bright red tomato!
In cool places and vines you grow,
Your tangy taste and your round shape
Makes every dish look great!

Your 3D shape takes away my breath,
With neither an edge nor a vertex
You are a sphere, smooth and round,
With just a curved surface all around.
You do not stack, you roll away,
No flat side for you to stay.



I can't agree more!
Even you are no less than a hero!



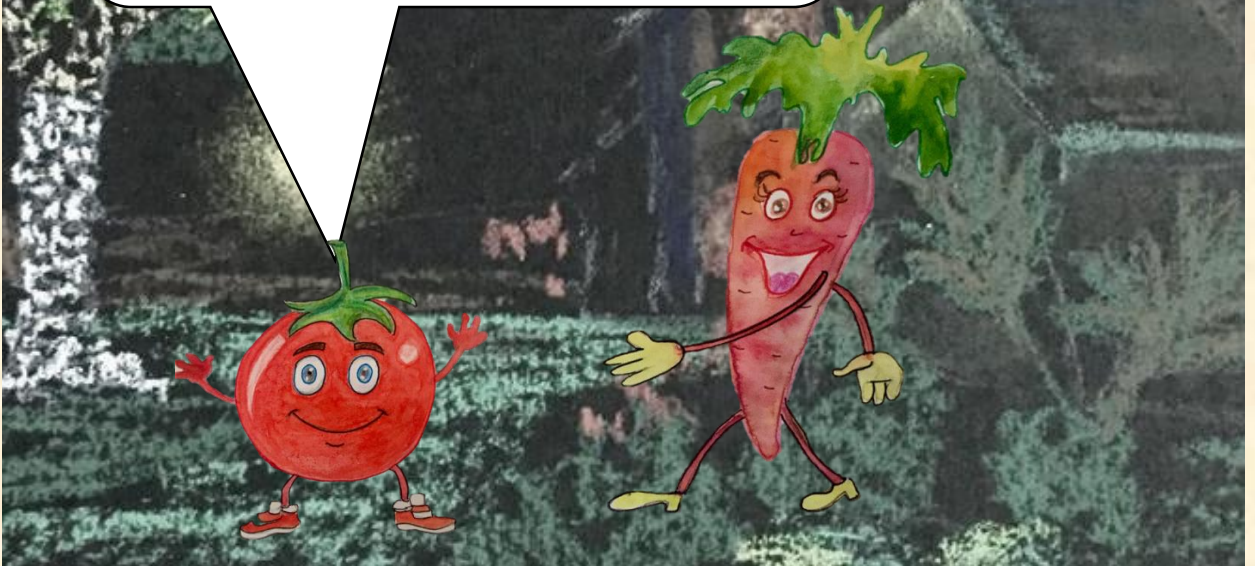
Oh really!



No salad, no juice is complete without you.
You are a root, shaped like a cone.
You look so cute on your own.

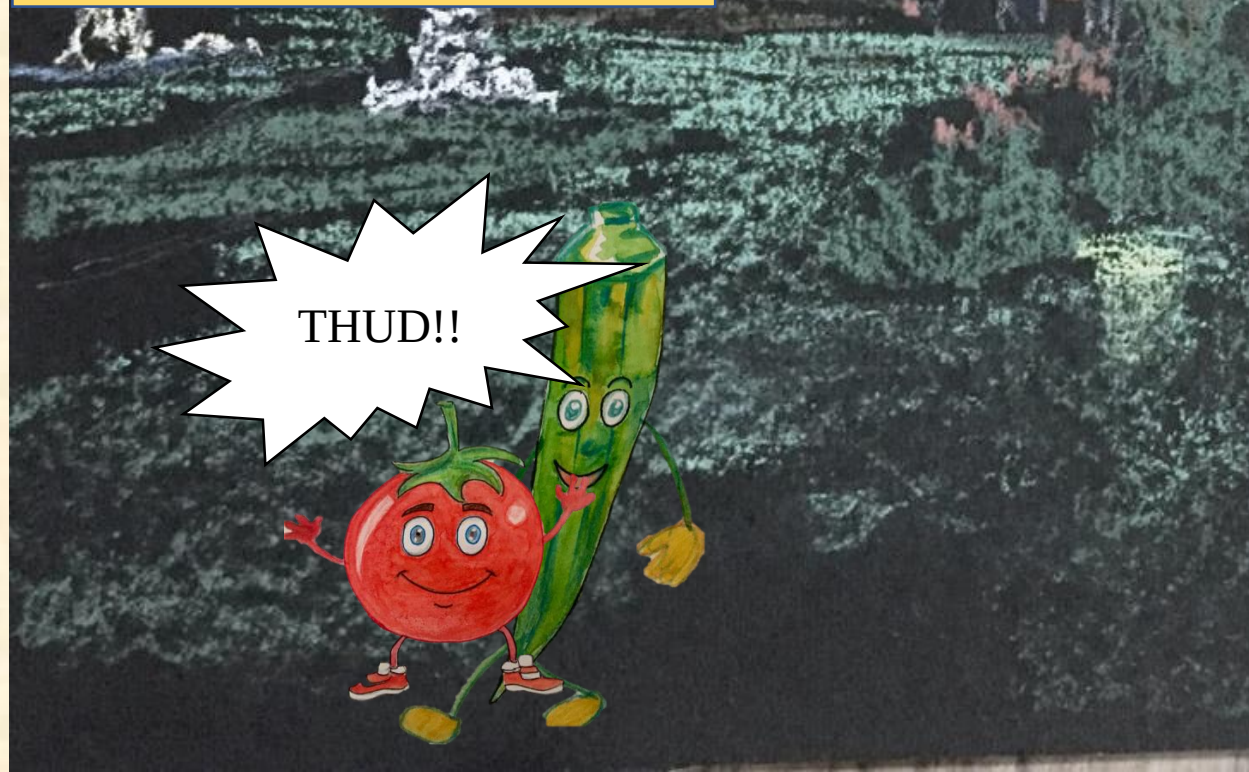


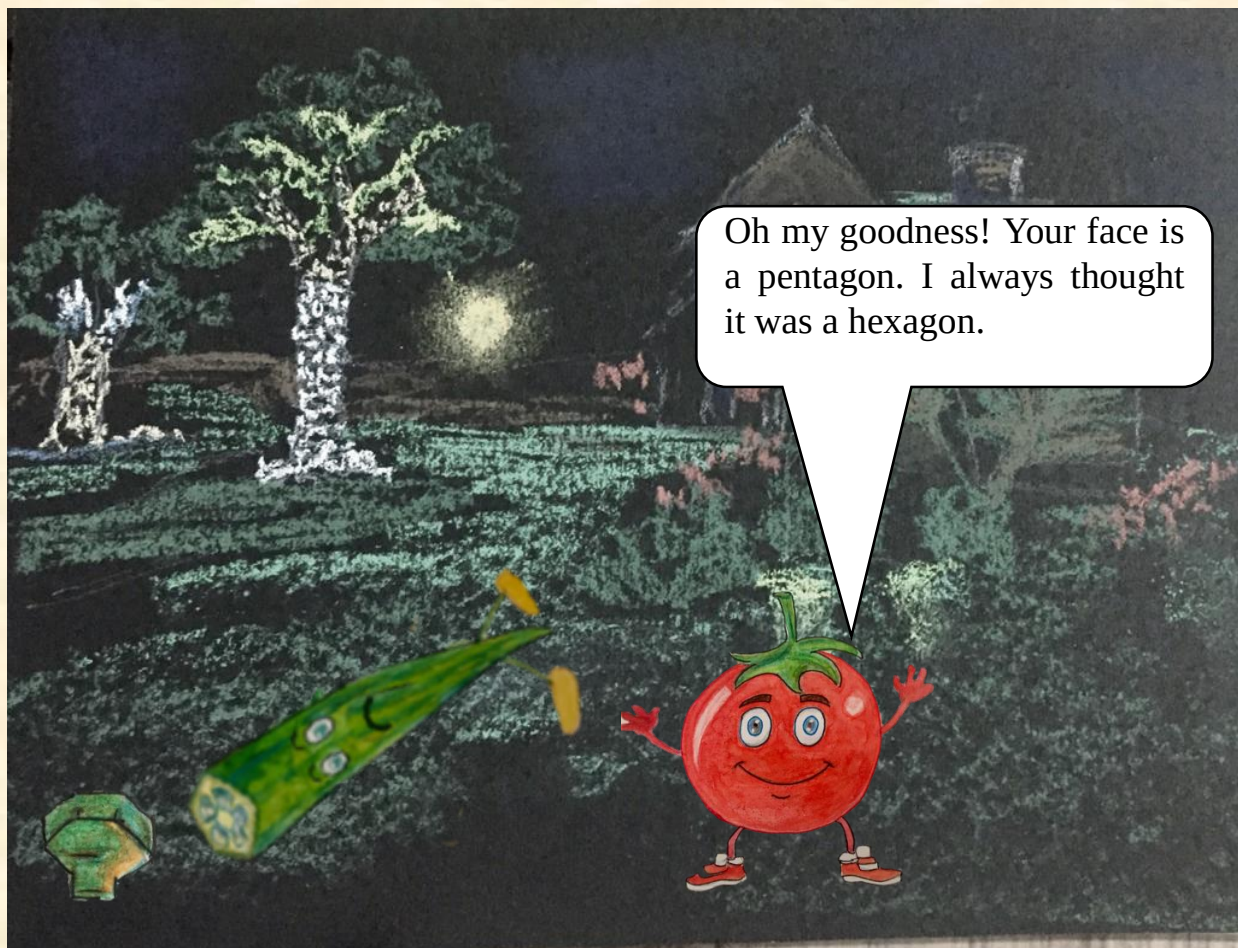
In orange, purple and red,
With an edge and a vertex
That we also call an apex.
A surface that is perfectly curved ,
Makes you everyone's worth.



CHAPTER 3: DISTINCTIVE PERSONAS

While dancing, they bang into each other...





Oh my goodness! Your face is a pentagon. I always thought it was a hexagon.



Is it so? Even I didn't know.



Hey look Chintu! See what I discovered. A Pyramidal Pihu!

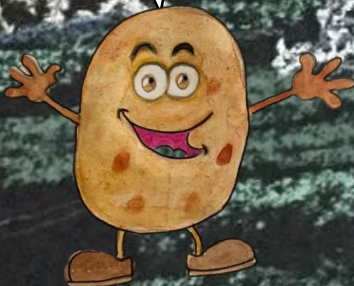
You look so chic in this new avatar
As unique as the North Star!
Pyramids stand tall with grace
They are named as per their base.
Other triangular faces meet at the top
Giving it the look of a hillock!

Thank you Mr. Cool
Cucumber. I too love your
cylindrical shape.

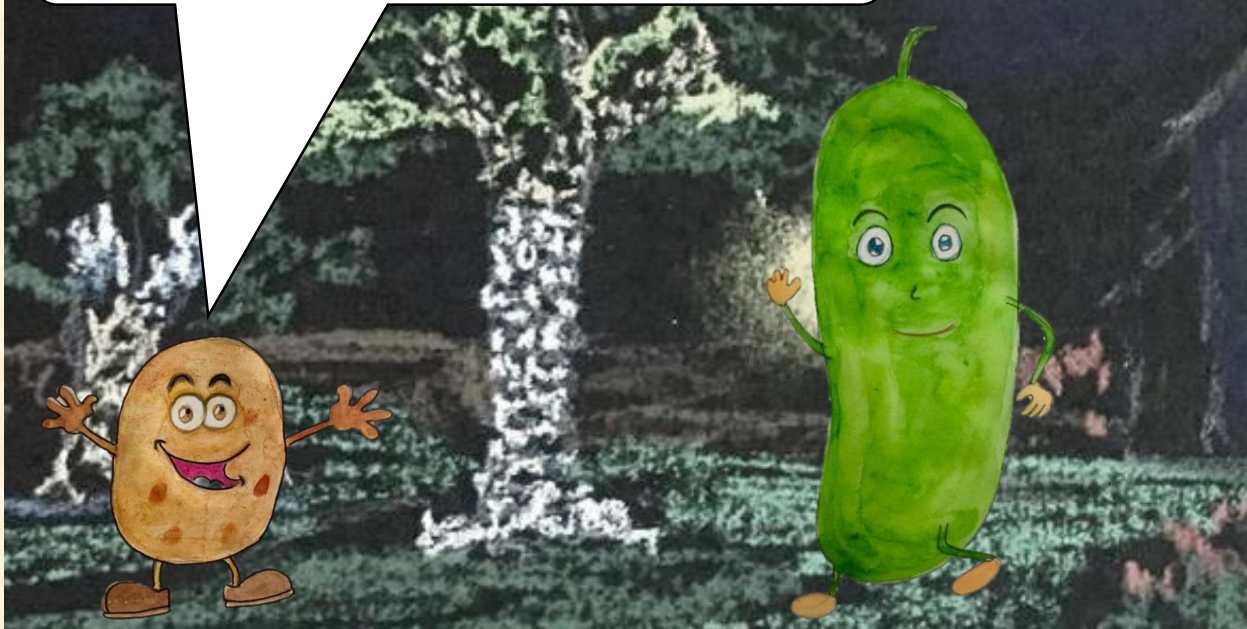


You are tubular as a rule,
A cylinder that is really cool.
Wish I were also long and slender,
Then I too could walk in splendour.

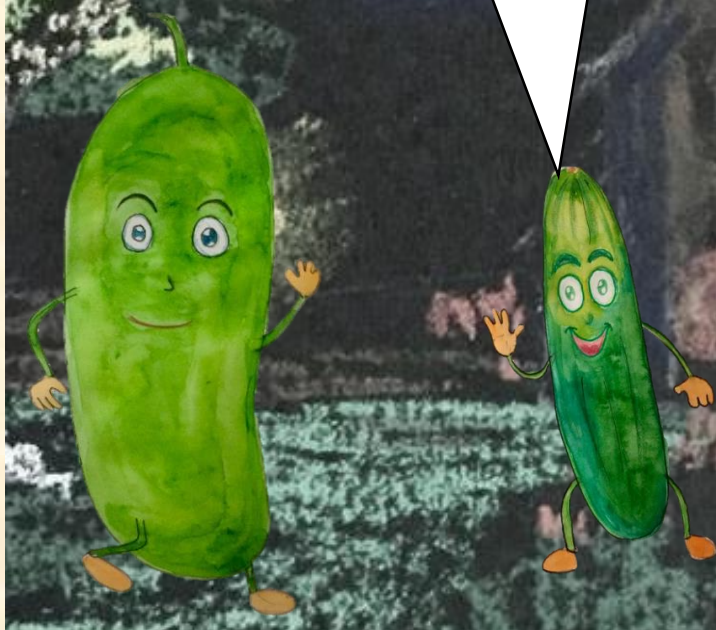
O dear Potato, you have nothing to
hide;
The most used on Earth, from
mashed to fried;
You are born as a strong root,
And certainly lift our mood!



You are so large, you have the same colour as a pear.
You help us take care, you are easy to tear.



Soft, delicate and fleshy,
You make us all healthy.



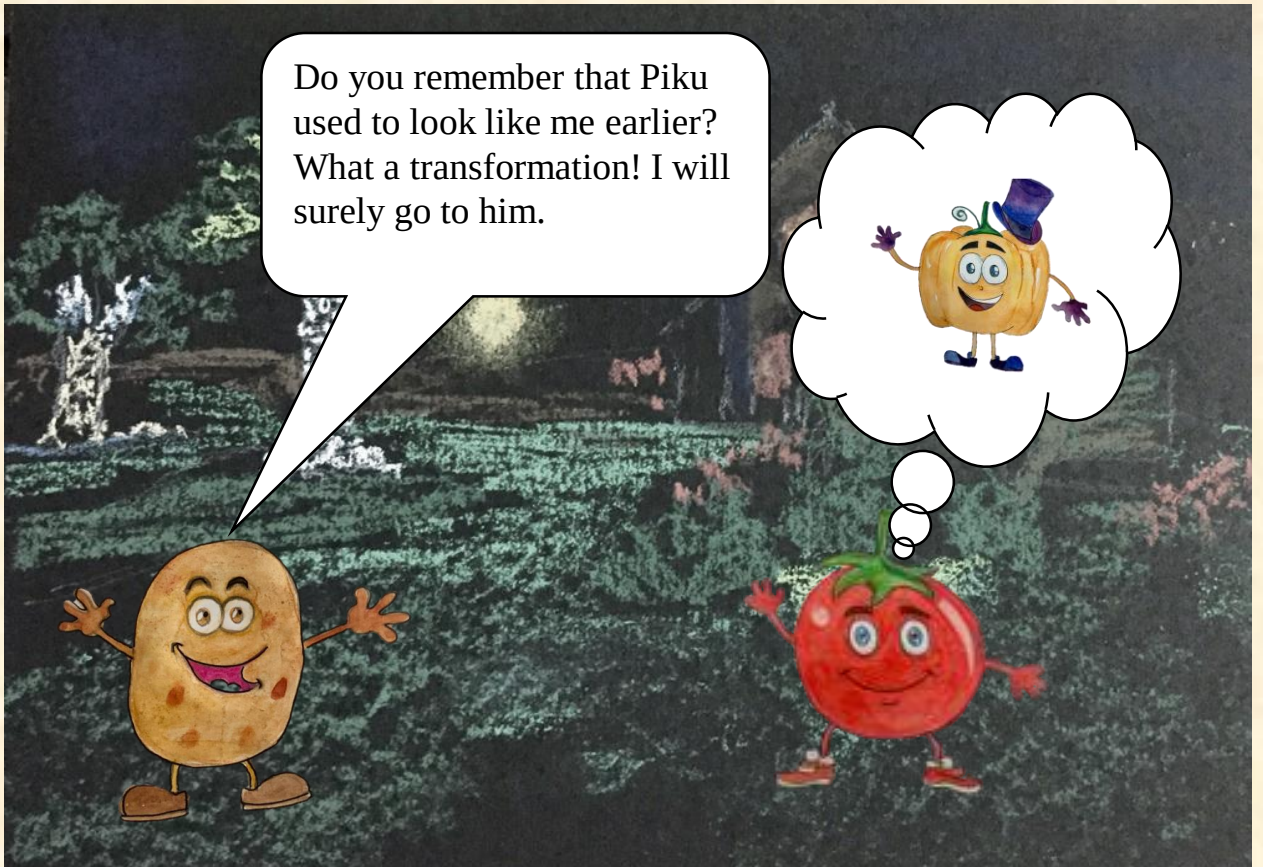
CHAPTER 4:MAGICAL MAKEOVER



Bholu and Piku : The Designers



Do you remember that Piku used to look like me earlier? What a transformation! I will surely go to him.



Piku looks so tall and sleek,
So symmetrical and so unique.
With 18 edges and 8 faces
“I am a hexagonal prism now”, he
says.



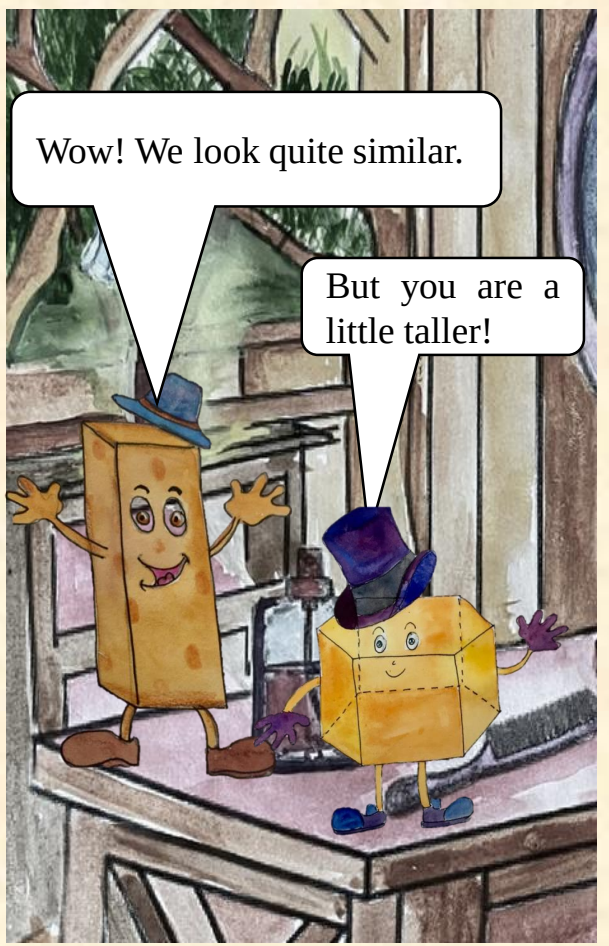
Here I go!
Be ready to see me in
my new avatar.





Oh, Hexagonal prism!
Your congruent base and
top are my inspiration.
I want to be like you and
gain admiration.

You are much more versatile.
All you need is a little help
with style!





I am amazed to see your faces from different angles. From top, your face is hexagonal and from side view, you look rectangular.

Same goes for you. Your side view is rectangular but when seen from the top, you look like a square.







You have good taste,
my saviour and guide,
Give me any shape,
I would be much obliged.



I have brought my tools to slice,
Let's use them and make you look
nice.
Watch me bustle with action,
And you will be pleased with my
creation.



After giving a horizontal cut...

You look like mini
Bittu.

In that case, give me
something chic.



Here you go, Chikki. I am sure
it will make you look unique.



After giving a diagonal cut...

You are an ellipse now,
Look at your grace!
You fill me with awe,
What a beautiful face!

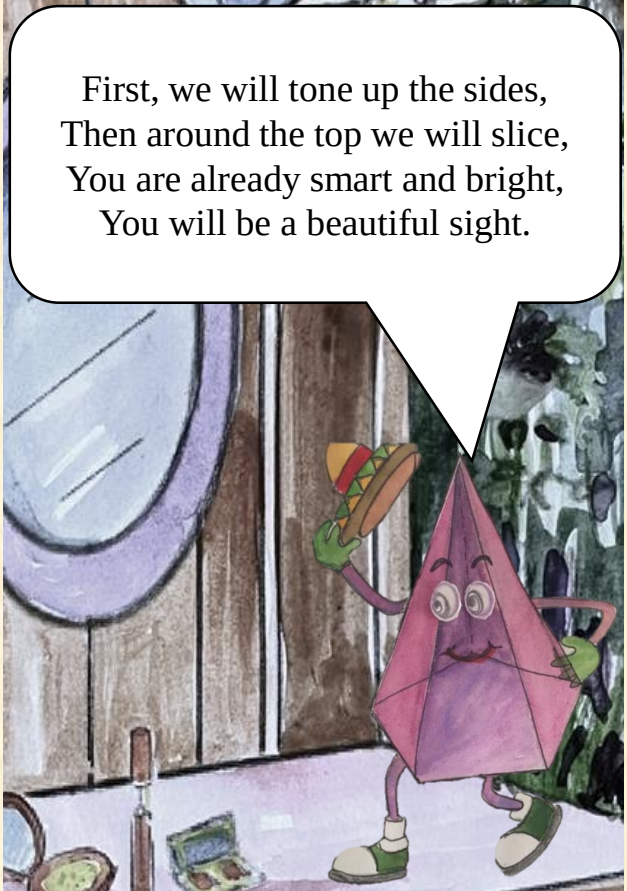
Oh wow! I can't believe it's me.

Thank you Piku!

I feel so glad,
They all look so pretty.
If only I had
Even part of their beauty.



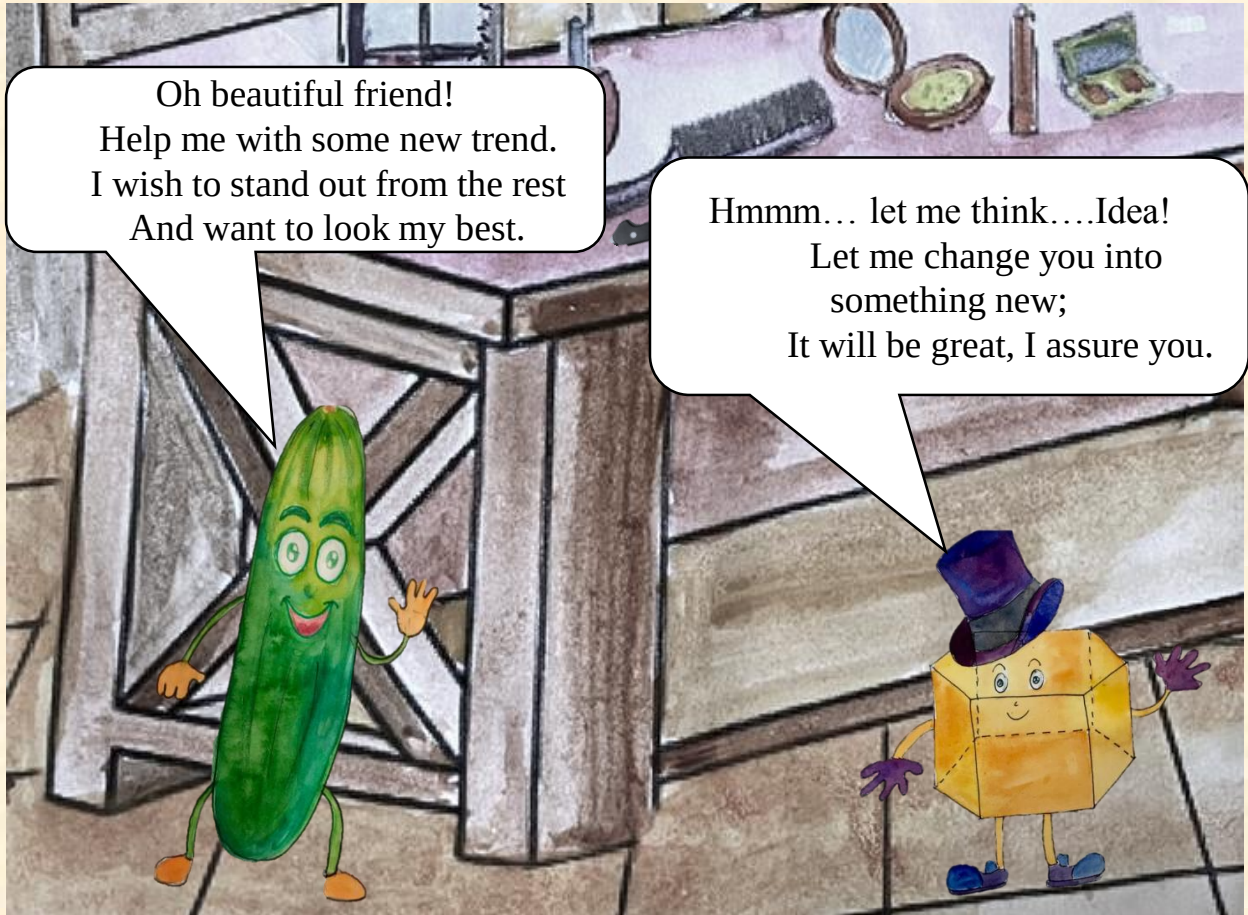
Don't lose hope, nor be sad,
Want to be a cool little lad?
Give me one little chance,
Your beauty I will enhance.



First, we will tone up the sides,
Then around the top we will slice,
You are already smart and bright,
You will be a beautiful sight.



Thanks, I really look cool.
Hurray! I love my two flat circular faces
To top, it is my toned curved surface
Absence of vertex makes me smooth
And vitamins to make the skin soothe.



Oh beautiful friend!
Help me with some new trend.
I wish to stand out from the rest
And want to look my best.

Hmmm... let me think....Idea!
Let me change you into
something new;
It will be great, I assure you.



As a cube, you can be neatly stacked
You are totally full of swag.
Not just twelve edges and six equal faces
Now you also have eight vertices.
You look dapper,
And surely a showstopper.

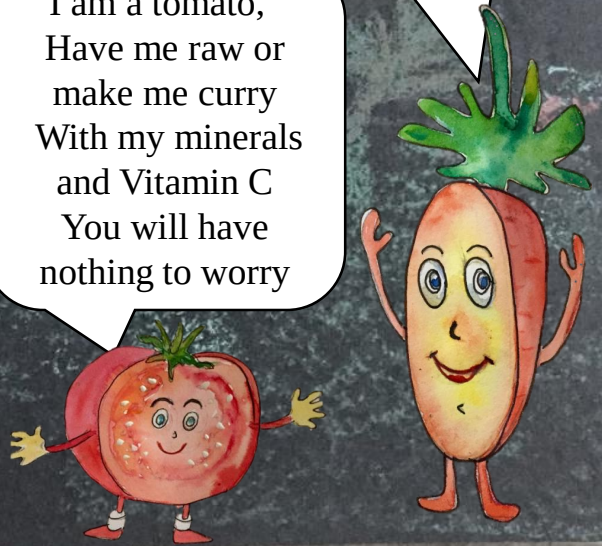
Thanks, we really look
cool.

You all look beyond recognition.
You are beautiful inside out.



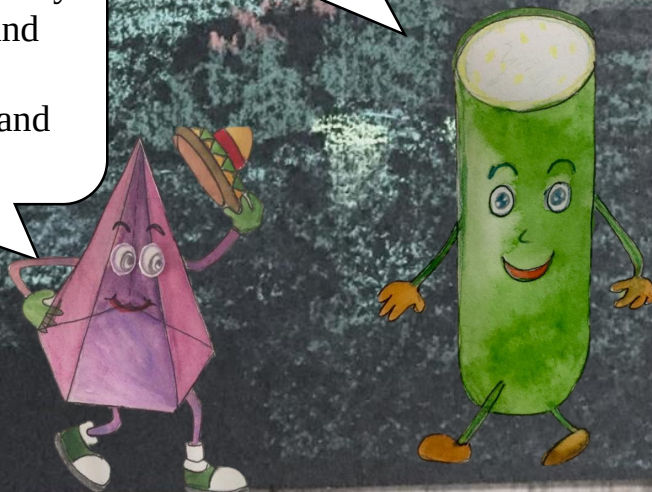
I am a carrot,
Full of fibre, minerals & Vitamin A
For a good eyesight
Relish me every day!

I am a tomato,
Have me raw or
make me curry
With my minerals
and Vitamin C
You will have
nothing to worry

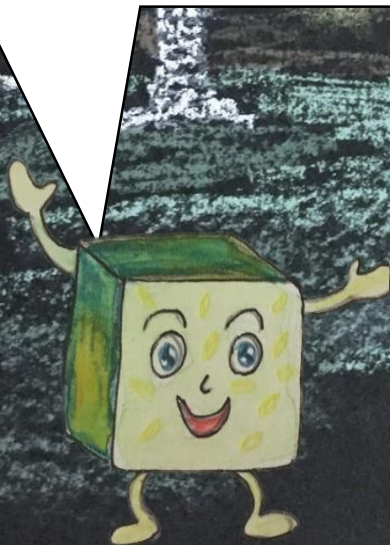


I am a bottle gourd,
I am in great demand
Ulcers and acidity I treat,
I taste a little bland
Eat me and your nerves will stay healthy
Perfect digestion and sound mind
will make you happy

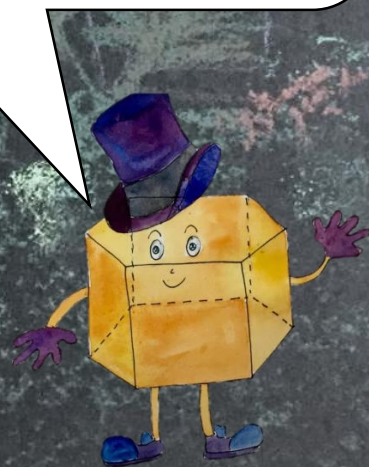
I am a brinjal, purple and pretty
Having fibre, minerals and
vitamins in plenty
I keep your brain, blood and
tummy healthy.



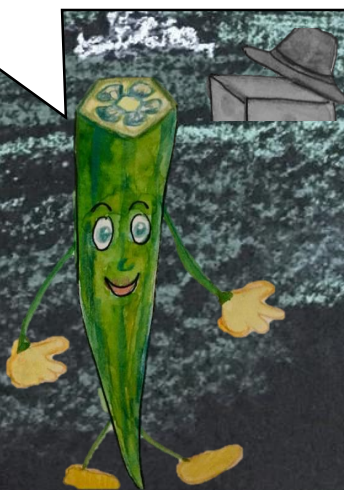
I am a Cucumber,
I'm cool in the heat
Vitamin K, fibre and water,
for you to eat;
Hydrate yourself with me
as your treat.



I am a Pumpkin,
Vitamin A I carry,
I also give you
Vitamin C and E.
If you eat me,
I will make your illnesses flee.

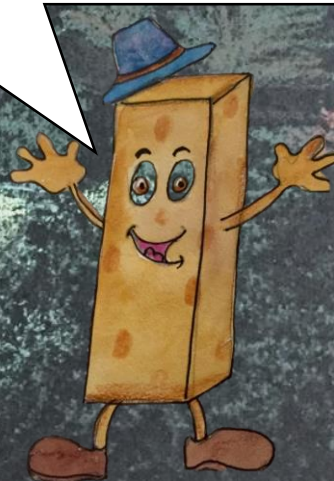


I am a Ladyfinger;
Okra they call me;
I am full of minerals, fibre,
folate and vitamin C.
I am great in many ways
For good health, I am the key.

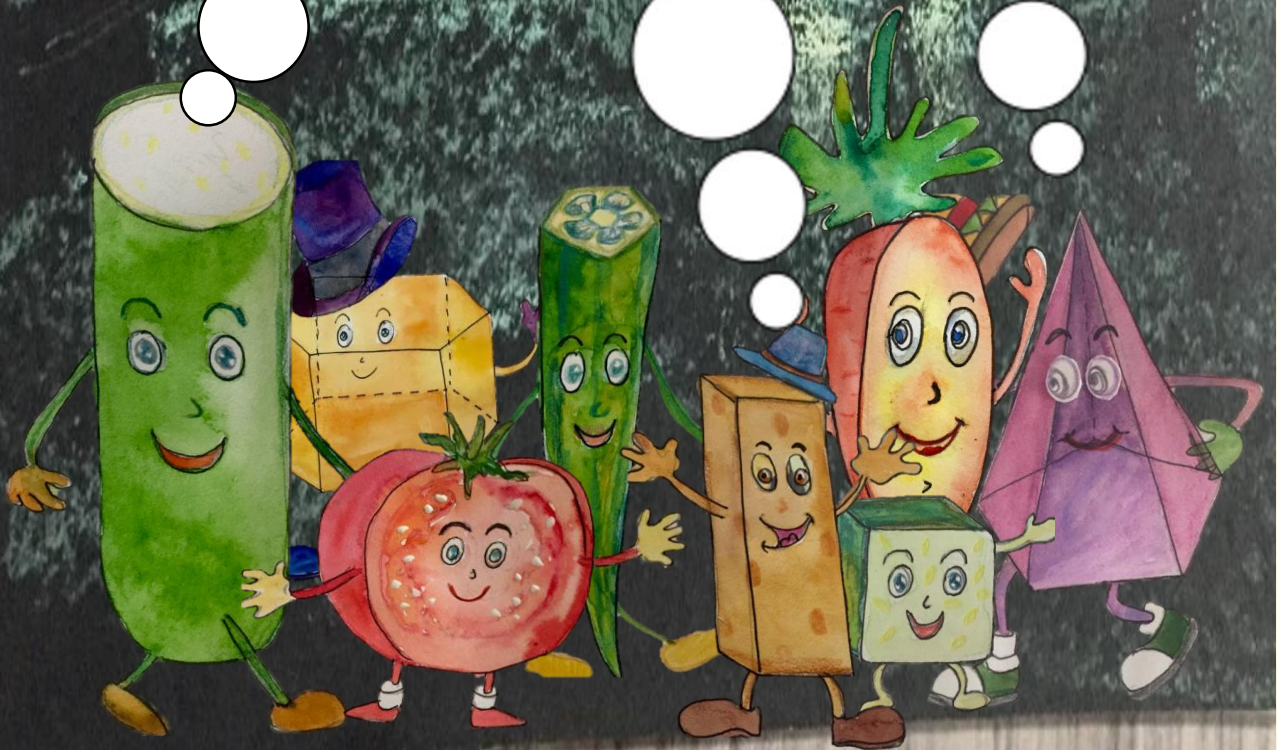


I am a Potato, growing underground
Potassium, Vitamins B6 and C in me
abound.

I am a tuber with eyes that can't see
But they will sprout out if you let me
be.



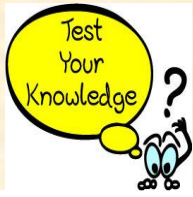
We are 3D shapes, fat not flat
You can find a cone in a birthday hat.
Unlike 2D, we have edge and height,
In several colours, we look so bright.
Flip us, slice us, you will see
We are 3D and will always be.
You see a sphere in a basketball
And a cuboid in a building so tall.
You see a cube in the dice you roll,
And a cylinder in a shiny flagpole
We hold volume and we are strong,
Let's rock the party with our happy song.



Let's Brainstorm

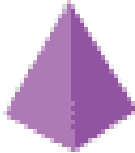
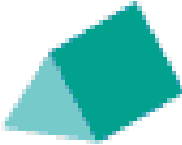
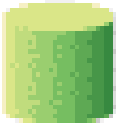
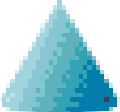
**MATHEMATICS IS THE POETRY OF
LOGICAL IDEAS..**

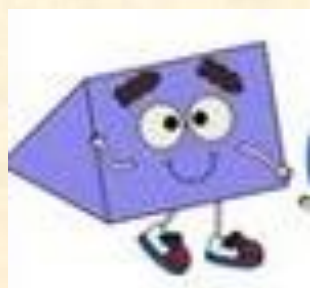




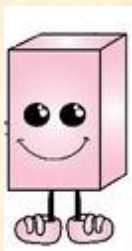
ACTIVITY 3 : 3D PROPERTIES

Fill in the table with faces, vertices and edges for each solid shape.

SHAPE	FACES	VERTICES	EDGES
			
			
			
			
			
			
			

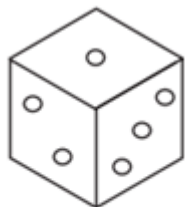


It's Funtime



ACTIVITY 4: VIEWS OF 3D OBJECTS

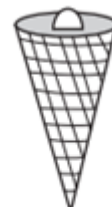
Draw the specified view of each real-life object



top view



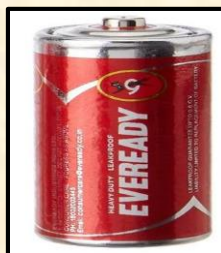
front view



top view



side view



top view



front view

CHAPTER 5: INSIGHTFUL MOMENTS

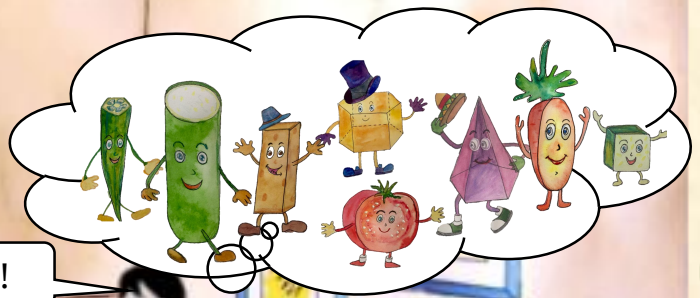
Jai wonders about his dream...

I can't believe what I just saw.
Can it really be true?



I hope you slept well.

Yes!







Wow! I can't believe it.
You made my dream come
true.
Yummy! This is so tasty.



Is this true?



I wish I had planned
this visit earlier.



I can't imagine
I spent the
entire day
without my
device and... I
am happy.
Thank you
Mom and Dad
for the
wonderful day!



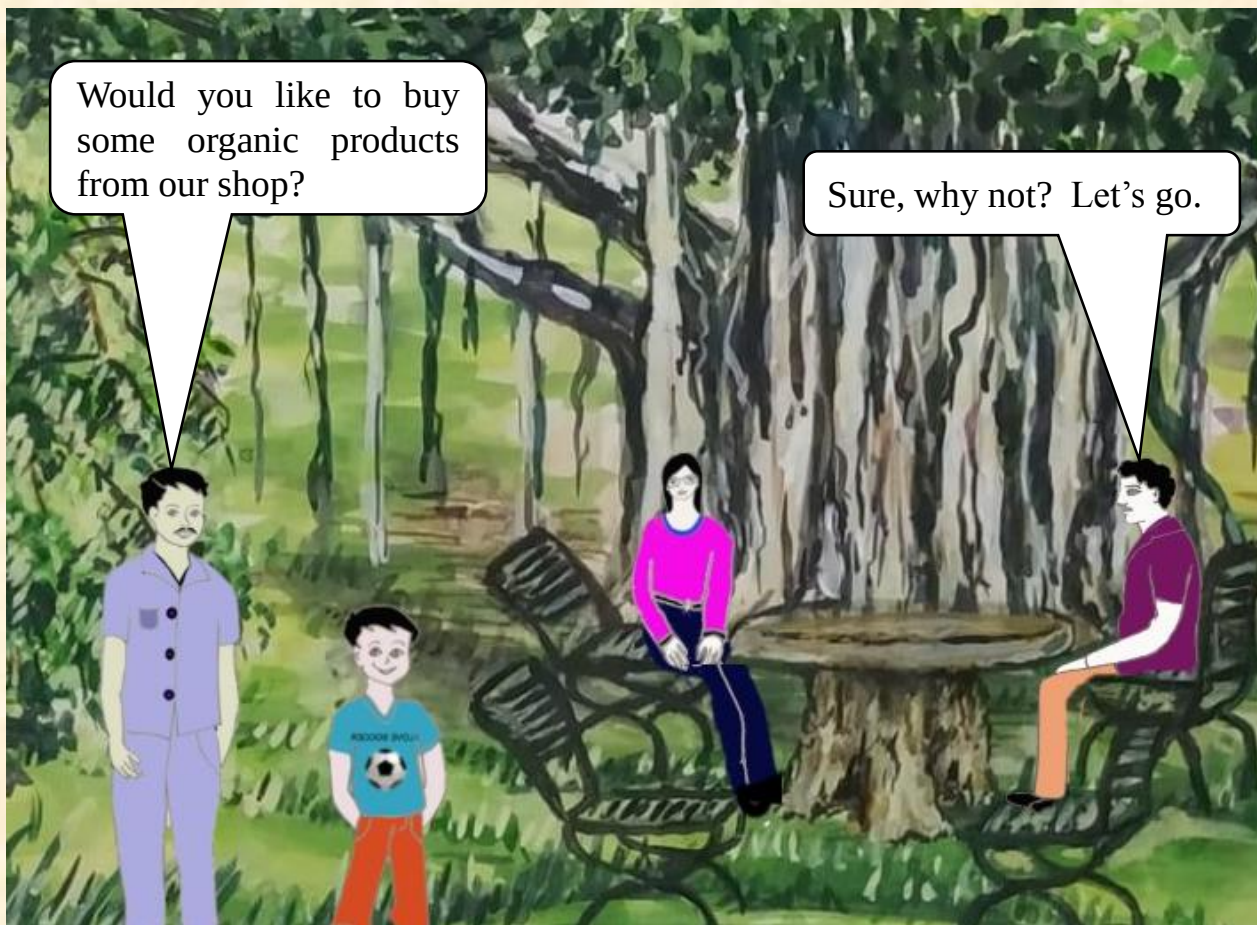
I am happy too for all of us. I am feeling fresh and energized.



It was indeed very rejuvenating. Let's plan it every fortnight. It will really be worth it.



Would you like to buy some organic products from our shop?



Sure, why not? Let's go.

At the shop...





I would like to buy honey. How much is the quantity in each bottle?

All of them are 500 ml.



Ok, I want the one in cylindrical bottle.

Dad, let's take the other shape. I like the other one more.



The cylindrical one will occupy lesser area in our bag though the volume is same in both of them.

A man with dark hair and a mustache, wearing a purple sweater, is talking to a young boy with dark hair wearing a blue shirt. They are in a grocery store aisle. Shelves in the background hold jars of honey and boxes of detox juice.

Oh! I see! Two shapes can have same volume even if their areas are different.



Let's go. Your mother must be waiting for us.

The man and boy are in the same grocery store aisle. The shelves now also include a small potted plant next to the detox juice boxes.

Yes, Dad!



This is for you, my
dear friend.
I am sure you will
relish it.

Thanks Bala.





EXPERIENTIAL LEARNING



**I HEAR AND I FORGET.
I SEE AND I REMEMBER.
I DO AND I UNDERSTAND.**





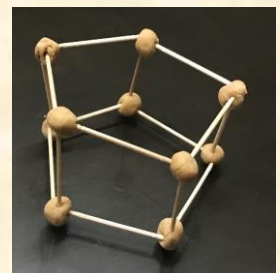
ACTIVITY 5

DO IT YOURSELF ACTIVITY

3-D CLAY SHAPES

For the fun activity, you will need toothpicks(edges) and small balls of clay / playdough (vertices) to create each 3D shape and record the number of edges and vertices on each shape.

3D SHAPE	3D MODEL	EDGES (NO. OF TOOTHPICKS)	VERTICES (NO. OF SMALL BALLS MADE OF CLAY)
CUBE			
RECTANGULAR PRISM			
TRIANGULAR PYRAMID			



ACTIVITY 6: LET'S SKETCH

What is an 'Isometric Sketch'? It is a pictorial representation of an object in which all the three-dimensions are drawn at the full scale. Important points of an isometric drawing are:

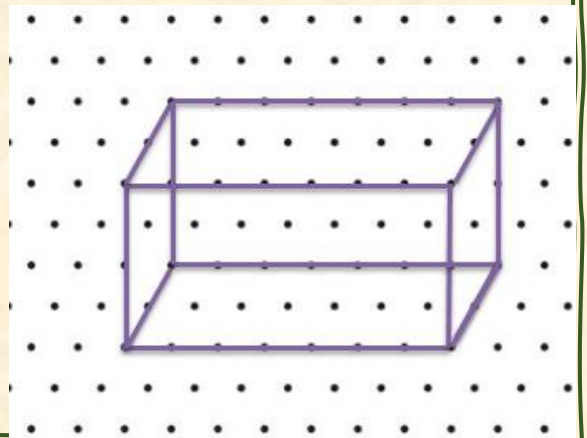
1. The meaning of isometric is having equal measurements or dimensions.
2. In an isometric sketch, the image of the object is drawn in such a manner that the original dimension of the object is intact irrespective of its position.

Rules for Isometric Sketching

- 1) An isometric object can be drawn using vertical lines and horizontal lines. In the isometric drawing, the vertical lines will stay vertically, whereas the horizontal lines are drawn at an angle of 30-degree to the horizontal plane.
- 2) The angle between all the three axes of the coordinate plane must be equal to 120 degrees. If you follow rule 1, then rule 2 can be automatically achieved.

Example:

Isometric sketch of a cuboid
with dimension $8 \times 3 \times 3$

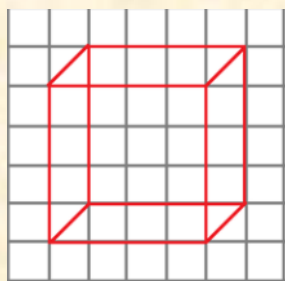


What is an ‘Oblique Sketch’? In our day to day life, we come across multiple three-dimensional objects such as prisms, basketball, football etc. A three-dimensional object can be easily represented on a two dimensional plane with the help of an oblique sketch.

Rules for Oblique Sketching

- 1) An oblique sketch has more focus on the front side of an object or the face.
- 2) It is drawn usually using the 45-degrees angle to render the third dimension.

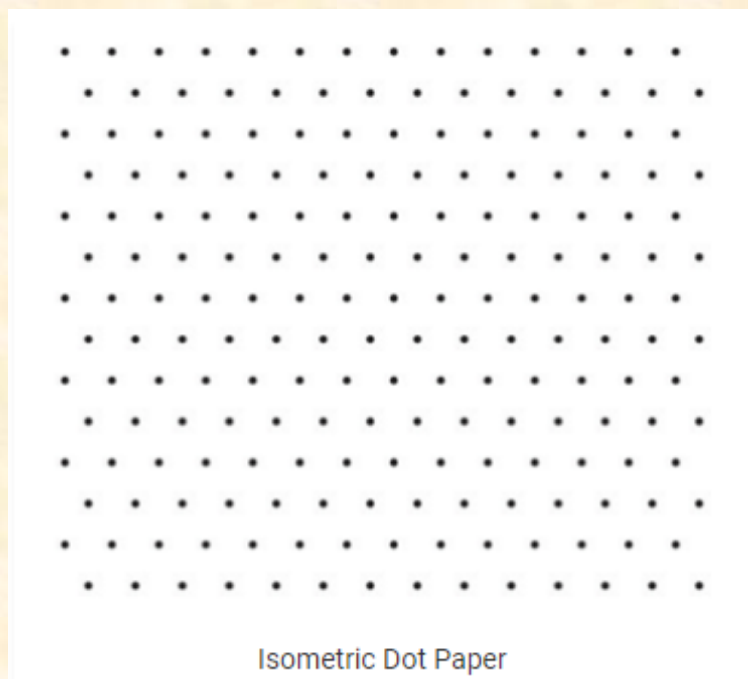
Example: Oblique sketch of a cube of side 4 units.



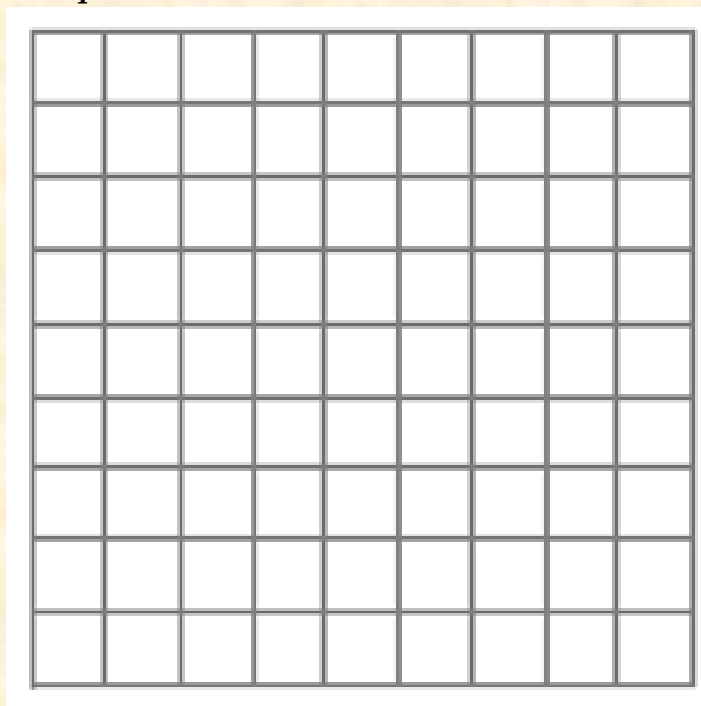
Note:

1. Size of the front and back end are same
2. All the edges in the cube are equal which also appear in the image but its measurement is different.

1. Draw an isometric sketch of a cuboid of dimensions 5 x 4 x 3.

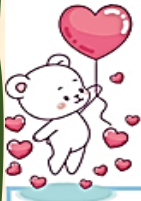


2. Draw an oblique sketch of a cube of side 6 units.



ANSWER KEYS

ACTIVITY 1



Identify shape traced from solid

Color the correct answer.

From this shape can you trace
a circle ?



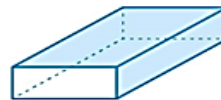
yes

or

no

Color the correct answer.

From this shape can you trace
a square ?

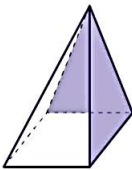


yes

or

no

From this shape can you trace
a rectangle ?

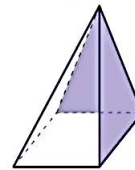


yes

or

no

From this shape can you trace
a square ?

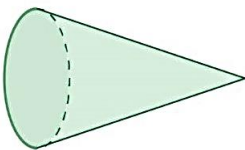


yes

or

no

From this shape can you trace
a circle ?

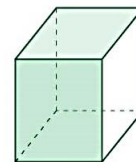


yes

or

no

From this shape can you trace
a square ?

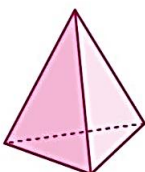


yes

or

no

From this shape can you trace
a triangle ?

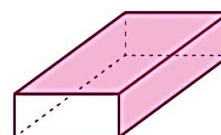


yes

or

no

From this shape can you trace
a rectangle ?



yes

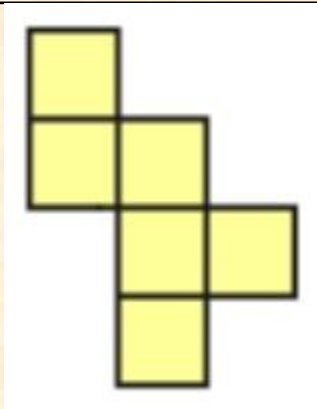
or

no

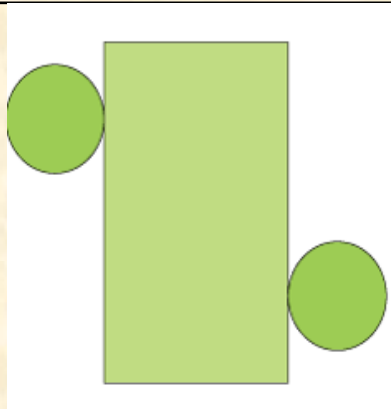
ACTIVITY 2: MATCH THE NETS

Label each net correctly

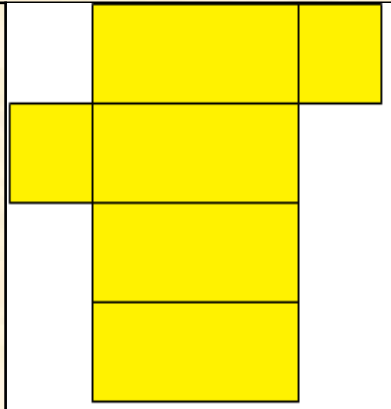
Cube	Cuboid	Cylinder
------	--------	----------



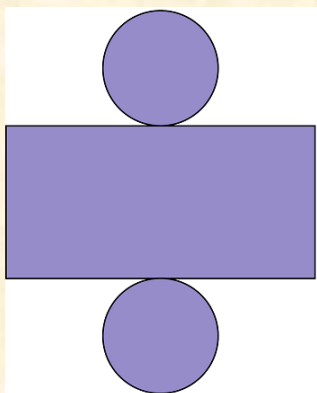
Cube



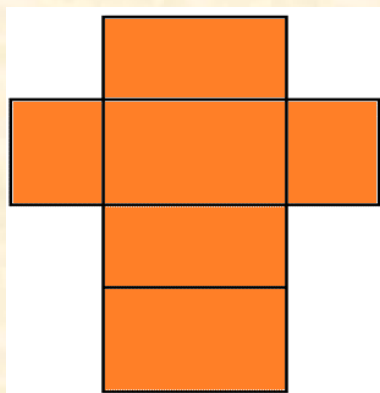
Cylinder



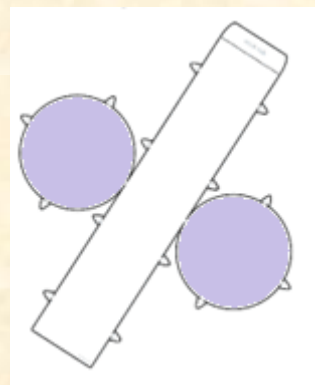
Cuboid



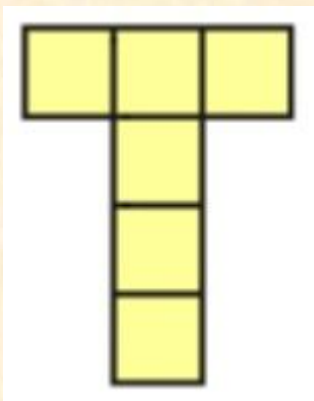
Cylinder



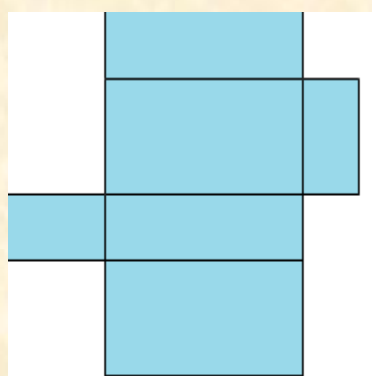
Cuboid



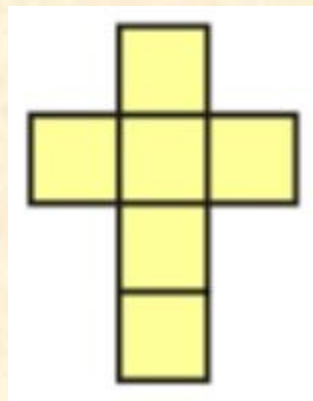
Cylinder



Cube



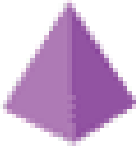
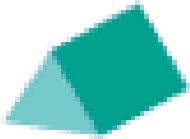
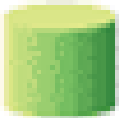
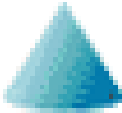
Cuboid



Cube

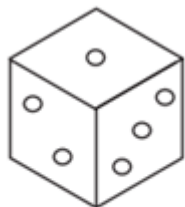
ACTIVITY 3: 3D PROPERTIES

Fill in the table with faces, vertices and edges for each solid shape.

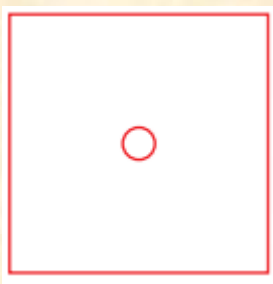
SHAPE	FACES	VERTICES	EDGES
	4	4	6
	8	6	12
	3	0	2
	1	0	0
	6	8	12
	2	1	1
	6	8	12

ACTIVITY 4: VIEWS OF 3D OBJECTS

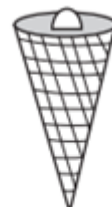
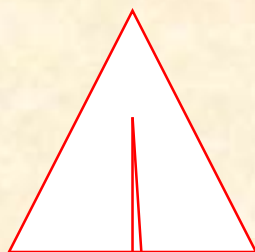
Draw the specified view of each real-life object



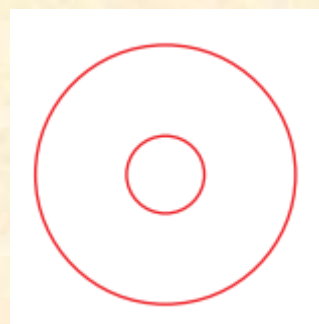
top view



front view



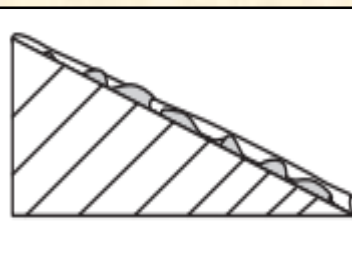
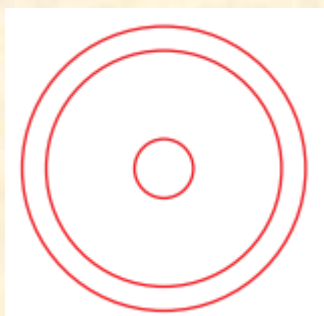
top view



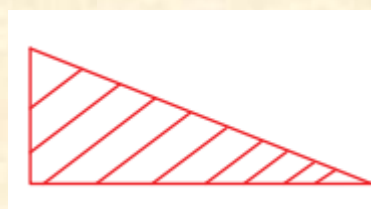
side view



top view



front view



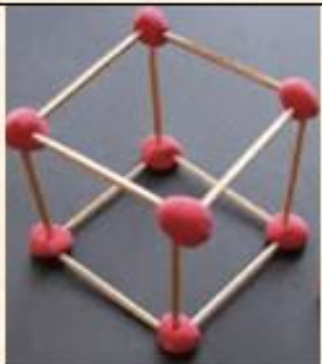
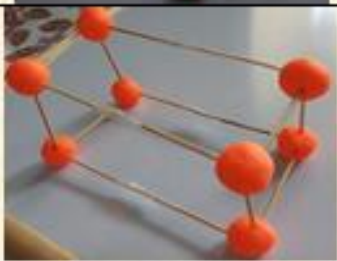


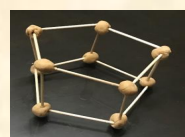
ACTIVITY 5

DO IT YOURSELF ACTIVITY

3-D CLAY SHAPES

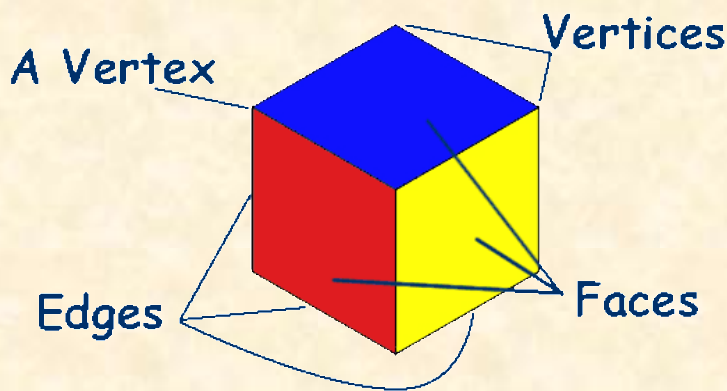
For the fun activity, you will need toothpicks(edges) and small balls of clay / playdough (vertices) to create each 3D shape and record the number of edges and vertices on each shape.

3D SHAPE	3D MODEL	EDGES (NO. OF TOOTHPICKS)	VERTICES (NO. OF SMALL BALLS MADE OF CLAY)
CUBE		12	8
RECTANGULAR PRISM		12	8
TRIANGULAR PYRAMID		6	4

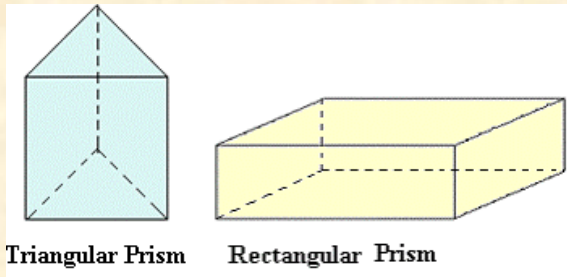


PICTURE GLOSSARY

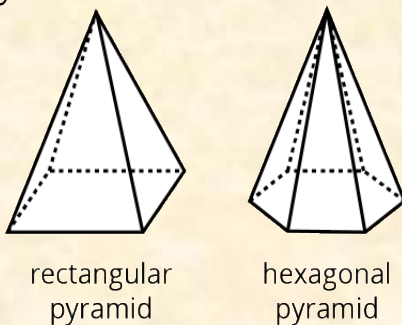
1. **Plane shapes:** Shapes that have two dimensions i.e., length and breadth are called plane shapes. Therefore, they are called two-dimensional shapes (2D) as well. Example: triangle, rectangle, circle etc.
2. **Solid shapes:** They have three dimensions i.e., length, breadth and height or depth. Hence, they are called three-dimensional (3D) shapes. It occupies some space. Example: cubes, cylinders, cones, spheres etc.
3. **Face:** Surface of a solid object is called its face. It can be plane (flat) or curved.
4. **Edge:** The line (straight or curved) where the faces of a solid meet is called an edge of the solid.
5. **Vertex:** The corner of a solid shape is called the vertex. Three or more edges meet at the vertex. The plural of vertex is vertices.



6. **Prism:** It is a 3D shape whose base and top are congruent polygons and whose other faces, i.e., lateral faces are parallelograms in shape. Prism is named after its base. e.g., prism with triangle as its base is called a triangular prism.



7. **Pyramid:** It is a 3D shape whose base is a polygon (of any number of sides) and whose lateral faces are triangles with a common vertex. Pyramid is named after its base. e.g., pyramid with hexagon as its base is called a hexagonal pyramid.



8. **Cylinder:** A cylinder is a 3D shape having two identical flat faces, 1 curved face, 2 edges and no vertex.



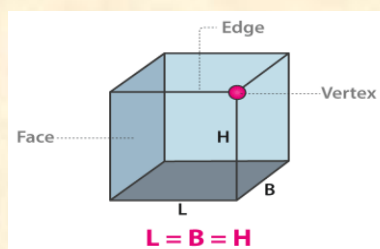
- 9. Cone:** A cone is a 3D shape having a curved face and a circular base with one curved edge and a vertex.



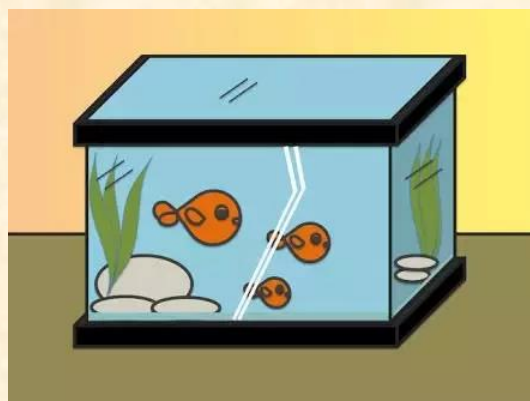
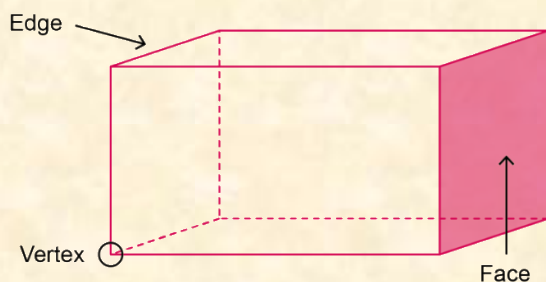
- 10. Sphere:** A sphere is a solid shape having all its points at an equal distance from the center point. It has only one curved surface. It doesn't have any vertex or edge.



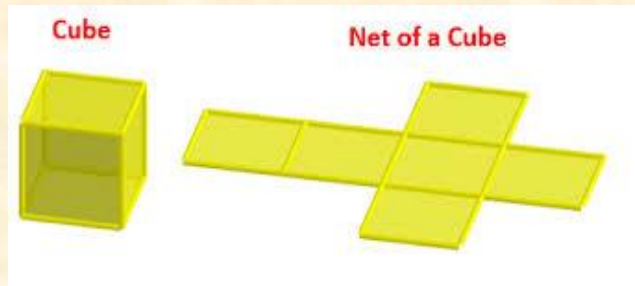
- 11. Cube:** It is a 3D shape bounded by 6 square faces, 12 edges and 8 vertices.



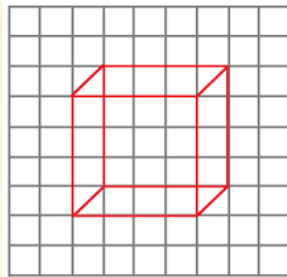
- 12. Cuboid:** It is a 3D shape made up of 6 rectangular faces, 12 edges and 8 vertices. It can be a square prism or a rectangular prism.



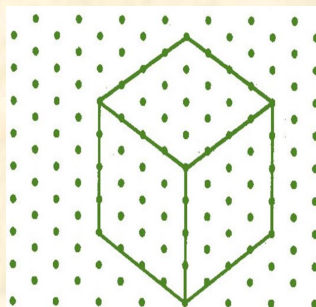
13. Nets : A net is defined as a pattern obtained when a three-dimensional figure is laid out flat showing each face of the figure. A 3-D shape may have different nets.



14. Oblique Sketch: The oblique sketching is a pictorial representation of an object, in which the diagram is intended to depict the perspective of objects in three dimensions. An oblique sketch has more focus on the front side of an object or the face. It is drawn usually using the 45 degrees angle to render the third dimension.



15. Isometric Sketch: Isometric Sketching is a pictorial representation of an object in which all the three dimensions are drawn at the full scale. An isometric sketch focuses on the edge of an object. It is usually drawn using the 30 degrees angle.



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MESSAGE FROM DIRECTOR PRINCIPAL



The creation of this graphic novel has been a unique experience for all of us. It has, in a sense, involved the 4 Cs, the 21st Century skills : Creativity - since all of us have created these graphic novels, Collaboration- all departments came together to work as a team, Critical thinking- putting our heads together to think of the best ways to engage our learners and of course, Communication - among ourselves and more importantly, communicating learning outcomes to our audience.

I think the Graphic novel is a great way to break up complex modules and explain them through a story.

My heartfelt gratitude to Ms. Anita Karwal and Mr. Manoj Ahuja, for encouraging the teams to create this content. A debt of gratitude to Mr. Sandeep Sethi, without whose training and patient hand holding, this novel would not have seen the light of day!

Kudos to the teachers for venturing into uncharted waters and reaching their goal!

Aditi Misra
Director Principal
Delhi Public School
Sec 45
Gurgaon

Jai, a city bred, does not like healthy food like fruits and vegetables. On a weekend visit to a farm along with his parents, he explored the wonderful world of vegetables where vegetables, in different colours, shapes and sizes allured him in his dream. To his surprise, vegetables started talking, dancing and singing and unfolded a vast world of three- dimensional shapes in front of him. This mathematical journey of nutritious vegetables not only encouraged him to eat right but also left an imprint on his memory!



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