



Master Lesson Plan

For

Boxes and Sketches

Board	Standard	Subject	Chapter	Language	Reference Link	Creation Date
CBSE	STD V	Mathematics	Boxes and Sketches	English	Boxes and Sketches	2020-08

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Boxes and Sketches

1. MS_ Objectives - Boxes and Sketches

Notes to the Teacher:

This Asset lays down the proposed plan for transacting this chapter. It states the asset objectives of the MLP. This asset is for teacher's reference and need not be taught to the students.

Objectives:

Students will be able to:

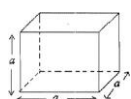
1. Describe the shapes that can be folded into cubes.
2. Think and create shapes to form an open box.
3. Describe and draw the floor maps.
4. Identify the difference in perception of floor maps and deep drawings.
5. Co- relate the NET to the 3D models.
6. Identify 3D shapes in structures and buildings around them.
7. Analyse floor maps.
8. Analyse and understand the difference between three dimensional and two dimensional shapes.
9. Solve problems related to 3D shapes and their Nets.
10. Appreciate the importance of planning in life.

Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Main Script	Solid Geometry	

2. MS_ Lets Explore 3-dimensional shapes

3D Shapes

Three dimensional shapes occupy space unlike two dimensional shapes like square, rectangle etc. An object which has length, breadth and height is known as a three dimensional or 3D object.. Examples: Cube, Cuboid, Cone, Cylinder, Sphere, Pyramid etc.

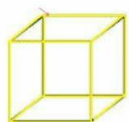


Cube

An object in which length, breadth and height are equal is called a cube. Its faces are all squares. Examples: Dice, Ice cubes, Sugar cubes etc.

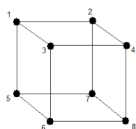
Two adjacent faces of a cube meet in a line segment, called an edge of the cube. A cube has 12 edges.

(as shown in fig 1)



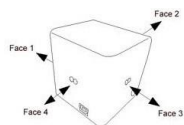
(fig 1)

The three edges of a cube meet at a point, called a vertex. A cube has 8 vertices. (as shown in fig 2)



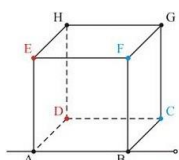
(fig 2)

A cube has 6 square faces. (as shown in fig 3)



(fig 3)

In short, a cube has:



(fig 4)

Refer figure 4:

12 edges - AB, AD, AE, EH, EF, FB, FG, GC, GH, HD, BC, CD

8 vertices - A, B, C, D, E, F, G, H

6 faces - ABCD, EFGH, ADHE, BCGF, ABFE, CDHG

Nets

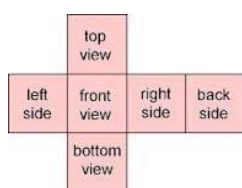


Nets are flat patterns that can be used to make 3D models. In other words, if we unfold or open up a solid shaped 3D object, we can get it's net.

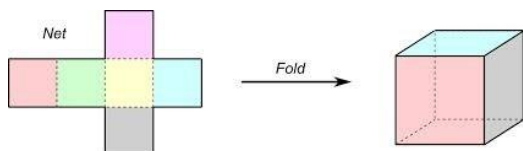
Example: In malls and shops we see unfolded cutouts of boxes, those are the nets of the boxes to be made. So, we can say that nets can be folded into a 3D shape.

Nets for a Cube

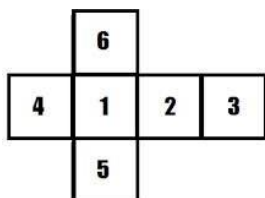
A net for a cube can be drawn by tracing faces of a cube as it is rolled forward, backward, and sideways.



Instructions for making and folding nets into cubes:



1. Take a piece of paper. The bigger your paper, the larger the final cube will be.
2. Draw the main body. In the center of your paper, draw a long rectangle and divide it into four squares 4, 1, 2, 3
3. Draw another square no. 6 on the top of the second square (above No:1).
4. Draw another square no. 5 to the bottom of the second square (below No:1).
5. Now, it should look like a cross with six equal sized squares (as shown in fig 5)



(fig 5)

1. With scissors cut along the outside edges of the shape.



2. Follow along the inside lines, and fold the paper inward.

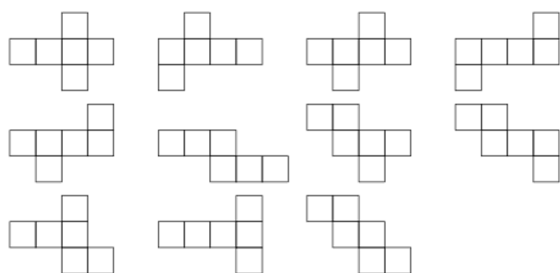


3. Align the folds. The square on the very bottom should be folded so it is parallel or directly across from the square that was in the middle.



4. Finish up your box. Tape all of the sides together, and you're done!

DIFFERENT TYPES OF NETS FOR A CUBE: There are 11 types of NETS that can form a cube -



All of these nets can be folded into a cube.

Note for the teacher:

Show the video/ppt attached to show how to fold the nets to form a cube. (In case the facility is not available then teacher can give live demo on how to fold nets to form a cube)

Link for Video: <https://drive.google.com/a/dcms.edu.in/file/d/0BzeHcyoxaB0qLV9TWVRfMIZwQTA/view?usp=sharing>

Image source SSSVV Creations

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Main Script	Solid Geometry	Viewing different sections o Viewing different sections o

3. MS_ Open Box

Parisha went with her father to buy pastries from the Singh Sons Bakers.



The shopkeeper made the box for pastries in front of Parisha and packed the pastries. On the way home

Parisha wondered how the shopkeeper made the box out of cardboard.



As soon as she reached home she started making a bag with paper, but she was unable to make it. Then, her father gave her some pastries.



He saw her making something and asked her what she was doing. She told him that she was trying to make a paper bag as the shopkeeper had made. Her father told her that making a bag with any paper is not possible because it needs special cutouts. Then her father showed her the pastry box and unfolded it and explained to her that there are certain shapes by which we can make paper bags.



Steps to make an open box:

1. Consider the pattern (as shown in the picture below)



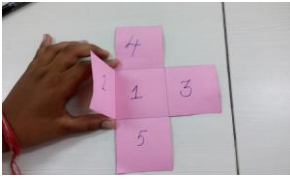
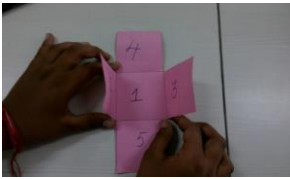
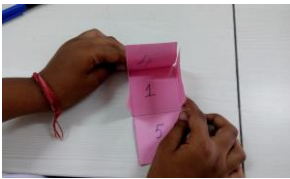
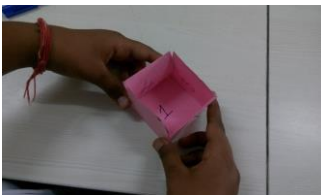
2. Fold square 2 (as shown in the picture below)**3. Now fold square 3 (as shown in the picture below)****4. Now fold square 4 (as shown in the picture below)****5. Now fold square 5 (as shown in the picture below)****6. Now your open box is ready**

Image Source: SSSVV Creations.

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Main Script	Solid Geometry	Viewing different sections o Viewing different sections o

4. SA_Net of 3D Shapes

NET OF THE 3D SHAPES

The net of a 3D shape is what the shape looks like if it is opened out flat. A net can be folded up to make a 3D shape. There may be several possible nets for one 3D shape. You can draw a net on paper, then fold it into the shape.

AIM OF THE ACTIVITY:

- To learn the names of different 3D shapes.
- To co-relate between the SHAPE NET and the 3D SHAPE.
- To find out the number of Faces, Edges and Vertices each 3D shape has.
- To learn to draw a net of the 3D shape.
- To made a 3D model.

RESOURCES REQUIRED:

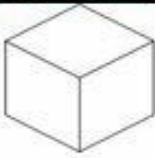
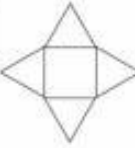
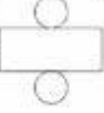
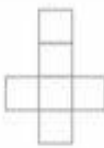
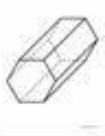
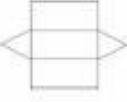
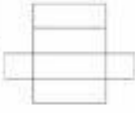
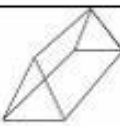
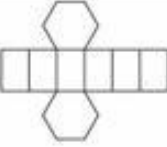
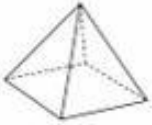
- Chart paper - 4
- Cello tape - 4
- Scissors - 4
- Pencil & Eraser (every child)
- Sketch pen (every child)

PROCEDURE TO CONDUCT THE ACTIVITY:

- Students in the class to call out one by one numbers 1 to 9.

- All students to fall into groups based on the number called out. Example: All the children who got to call out 1 to form one group, all the children who got to call out 2 to form an other group and so on...
- Teacher to distribute the worksheets among the children.
- Children to learn the names of different 3D shapes.
- Children to match the Column 'SHAPE NET' to Column 'SOLID SHAPE'.
- Teacher to show the PPT and elicit from the students the specifications of the 3D models with reference to Faces, Edges and Vertices.
- Each group to build the 3D shape corresponding to its number on a $\frac{1}{4}$ size chart paper.
- The group which has built the 3D shape perfectly gets a round of APPLAUSE.
- The teacher can make the children hear the song in youtube: <https://youtu.be/guNdJ5MtX1A> .

ANSWERS FOR THE WORKSHEET:

SOLID NAME	SOLID SHAPE	SHAPE NET	DETAILS
Cube			Faces: 6 Edges: 12 Vertices: 8
Cuboid			Faces: 6 Edges: 12 Vertices: 8
Octahedron			Faces: 8 Edges: 12 Vertices: 6
Hexagonal Pyramid			Faces: 7 Edges: 6 Vertices: 7
Hexagonal Prism			Faces: 8 Edges: 18 Vertices: 12
Tetrahedron			Faces: 4 Edges: 6 Vertices: 4
Triangular Prism			Faces: 5 Edges: 9 Vertices: 6
Cylinder			Faces: 2 Edges: 2 (Curved Edges) Vertices: 0
Pyramid			Faces: 5 Edges: 8 Vertices: 5

Conclusion: Once the worksheet is completed by the students and the PPT is discussed, the students from each group should be asked to do the 3D models as per the procedure defined. This activity will help the students to get a deeper understanding of the 3D models.

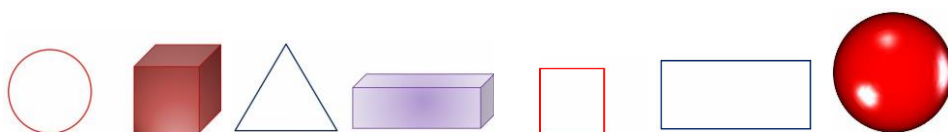
Note to the teacher: Teacher to print as many copies of the worksheet (attached with the asset) a day prior to the activity.

Image Source: SSSVV Creations

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Suggested Activity	Solid Geometry	Viewing different sections o Viewing different sections o

5. IQ_Depth in 3D shapes

Ques 1: What are the names of the figures shown?



Suggested Ans: Circle, cube, triangle, cuboid, rectangle, square and sphere.

Ques 2: What is the meaning of 2-D?

Suggested Ans: Two dimensional.

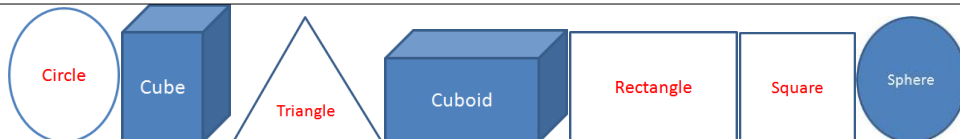
Ques 3: What is meant by dimension?

Suggested Ans: It is a measurable extent of a particular kind such as length, breadth, height or depth.

Ques 4: How do you define 2-dimensional shapes/figures?

Suggested Ans: Two-dimensional shapes/figures are those figures which have only length and breadth.

Ques 5: Show the below figures of circle, cube, triangle, cuboid, rectangle, square and sphere. Which of these figures are 2-D?



Suggested Ans: Circle, triangle, rectangle and square.

Ques 6: Are these figures 2-D?

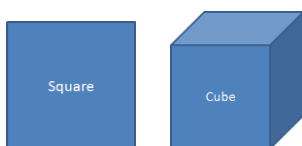


Suggested Ans: No.

Ques 7: How many dimensions the above figures have?

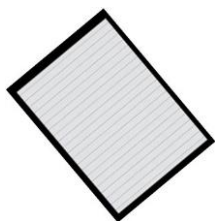
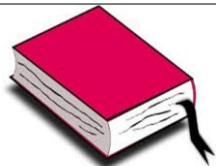
Suggested Ans: Three (length, breadth and height).

Ques 8: The square and cube have equal sides/length. What is the difference between them?



Suggested Ans: Square has only length and breadth but cube has length, breadth and height.

Ques 9: What is the difference between a notebook and a paper?



Suggested Ans: Notebook has length, breadth and height whereas paper has only length and breadth.

Ques 10: What do we call these shapes having length, breadth and height?

Suggested Ans: Three dimensional shapes.

Image Source:

<https://pixabay.com/en/dice-red-cubes-die-shapes-two-575658/>: dice

[https://en.wikipedia.org/wiki/Topic_\(chocolate_bar\)#/media/File:Topic-Bar-Split.jpg](https://en.wikipedia.org/wiki/Topic_(chocolate_bar)#/media/File:Topic-Bar-Split.jpg)

https://pixabay.com/static/uploads/photo/2014/10/27/18/50/walnut-corner-505389_960_720.jpg: cake

<https://pixabay.com/en/sphere-ball-plastic-round-3d-953962/>

<http://www.freestockphotos.biz/stockphoto/14371>: book

https://pixabay.com/static/uploads/photo/2015/08/07/03/56/paper-878964_960_720.png: paper

Time to teach	Asset Type	Theme	SubTheme
8 Minutes	Inquisitive Questions	Solid Geometry	Visualising 3D shapes, Visu shapes

6. DD_3D in Construction

Students will be already taught about the 2-Dimensional and 3-Dimensional shapes in Geometry. How 2D is extended as 3D will be explained to students. For example, square into cube; rectangle into cuboid; triangle into cone and circle into sphere. Students are also taught about polyhedrons (a solid figure with many plane faces, typically more than six).

Students to be shown the below pictures and asked to identify the 3D shapes and the corresponding 2D shape

SRI SATHYA SAI INSTITUTE OF HIGHER MEDICAL SCIENCES, PRASHANTHIGRAM



SHAPE IDENTIFIED: HEMISPHERE, CIRCLES, SQUARES

HITECH CITY (CYBER TOWERS)



SHAPE IDENTIFIED: CYLINDER, RHOMBUS

TAJ MAHAL



SHAPE IDENTIFIED: CYLINDER, HEMISPHERES

SRI SATHYA SAI SPACE THEATRE :



SHAPE IDENTIFIED: Dome is designed in the shape of a **TETRAHEDRON** that is 4 triangular faces joined together. Pyramid is a very good example of a tetrahedron.

PYRAMID OF GIZA:



SHAPE IDENTIFIED: **SQUARE PYRAMID**

THE LUXOR CASINO AND HOTEL, LAS VEGAS



SHAPE IDENTIFIED: PYRAMID

FAIR TOWER, FRANKFURT



SHAPE IDENTIFIED: This uses numerous geometric shapes in its design such as the CUBOID foot print which is the main shape used through out the tower. It then rises to a CYLINDRICAL shape which finally completes in a PYRAMID .

NAGOYA CITY SCIENCE MUSEUM, JAPAN



Nagoya City Science Museum | © 名古屋太陽/WikiCommons

SHAPE IDENTIFIED: Features the SPHERICAL shape of the world's biggest planetarium with a diameter of 35 meters.

NEHRU SCIENCE CENTRE:



Nehru Science Centre (NSC) is the largest interactive science centre in India. It is located in [Worli](#), Mumbai.

SHAPE IDENTIFIED: **CYLINDER, RHOMBUS**

NATIONAL LIBRARY OF BELARUS

National Library of Belarus, Belarus



SHAPE IDENTIFIED: **RHOMBICUBOCTAHEDRON**, with eighteen square faces joined by eight triangular faces.

MCELROY OCTAGON HOUSE, [San Francisco](#), [California](#)



SHAPE IDENTIFIED: **OCTOGON BUILDING, RECTANGLE WINDOWS, RHOMBUS GRILLS**

GUANGZHOU CIRCLE:



Located on the edge of the Pearl River, the 120 metre Guangzhou Circle was designed by BBPM&O of Milan studio. V&T Project to provide an iconic headquarters for Chinese companies Guangzhou Hengsheng Group and GDFP Guangzhou Plastic Exchange.

SHAPE IDENTIFIED: **Two CIRCULAR DISCS, HEXAGON, RHOMBUS, TRIANGLE**

IMAGE SOURCE :

<https://pixabay.com/vectors/shapes-objects-cylinder-cones-35091/>

https://media.radiosai.org/journals/vol_15/01JUN17/Kab-loge-khabar-more-Ram-Dr-Shamika-Ghaisas.htm

<https://publicdomainvectors.org/en/free-clipart/Taj-Mahal-Landmark/75803.html>

https://commons.wikimedia.org/wiki/File:Cyber_Towers_Madhapur_Hyderabad.jpg

<http://media.radiosai.org/journals/Portal/prasanthi.htm>

https://en.m.wikipedia.org/wiki/File:Uniform_polyhedron-33-t1.png

https://en.wikipedia.org/wiki/File:All_Gizah_Pyramids.jpg

<http://www.clker.com/clipart-16537.html#>

<https://www.needpix.com/photo/322536/las-vegas-pyramid-luxor-egypt-free-pictures-free-photos-free-images-royalty-free-free-illustrations>

<https://commons.wikimedia.org/wiki/File:Nagoya-City-Science-Museum-3.jpg>

https://commons.wikimedia.org/wiki/File:Nehru_Centre_11.jpg <Author: Sanyam Bahga>

<http://www.clker.com/clipart-cylinder-4.html>

https://pl.wikipedia.org/wiki/Plik:National_Library_of_Belarus_in_Minsk,_2012.jpg

<https://www.cleanpng.com/png-cuboctahedron-cube-polyhedron-archimedean-solid-tr-1480720/preview.html>

https://en.wikipedia.org/wiki/List_of_octagon_houses#/media/File:Octagon_House.JPG

https://unsplash.com/photos/jd2YTPu_q1Y

Time to teach	Asset Type	Theme	SubTheme
7 Minutes	Day-to-day Relevance	Solid Geometry	Viewing different sections o Viewing different sections o

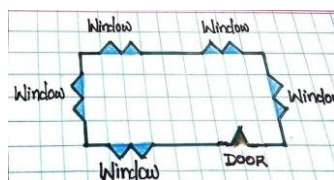
7. MS_Floor maps

Floor Maps:

For constructing any new house or a building, an architect is employed. An architect is a qualified person who develops the design of the house/building.

The first design that an architect prepares is called the Floor Map.

For Example floor map of a simple ONE ROOM HOUSE is given below:



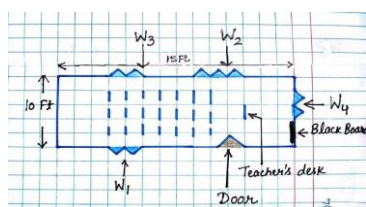
From this floor Map it is easy to make out that :

1. This house has got one window and one door in the front.
2. This house has two windows at the back.
3. This house has one window on the left and other on the right side of the house.

So, a floor map is a simple diagram showing the layout of all the rooms on a particular floor as seen from the above.

Let us understand it more clearly -

Floor Map of a CLASSROOM is shown below:



What do we understand from this floor Map shown above?

1. How many windows the classroom has?
2. Is the entrance door opposite to the black board?

3. Which window is exactly opposite to the entrance door?
4. What is the length & the breadth of the class room?

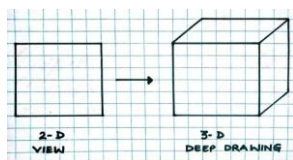
Limitations of the floor Map:

1. In the floor maps we mention the length and the breadth of the rooms. But we don't mention the height of the house.
2. Using floor maps we can't make out how this house would look like or how high the windows would be.
3. A floor Map provides only the top view of the room.
4. For overcoming the limitations of the floor Maps, we need to have diagrams that will indicate the height of the room as well.

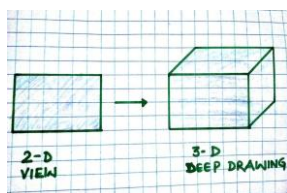
DEEP DRAWINGS:

A special way of drawing an object to show its length, breadth and height is known as deep drawing. So it is a three dimensional view of any object.

For example: Deep drawing of a cube is –



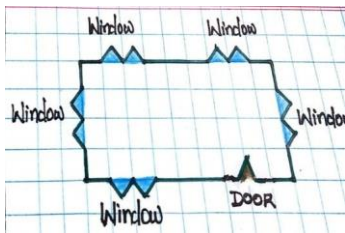
Deep drawing of a cuboid is –



2D view to original view (Image of a tomato)

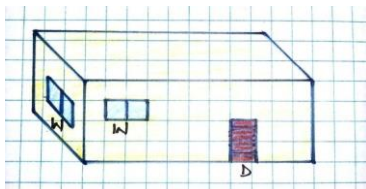


Consider the floor map of a single room house shown here:



2D View of a House:

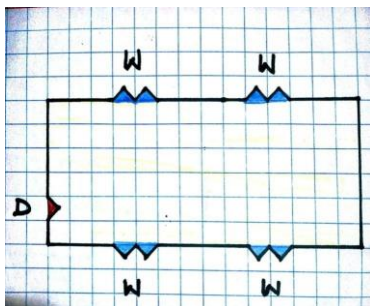
The deep drawing for this floor plan shown above will appear as –



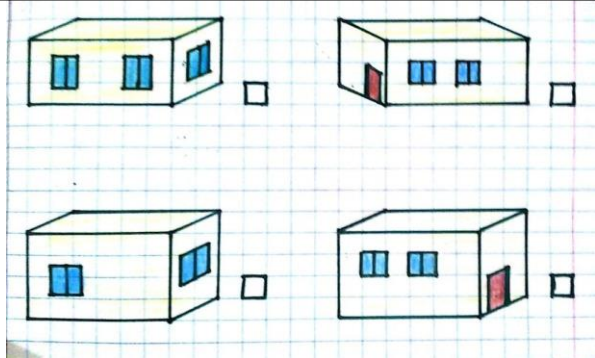
3D View of the House:

Another example :

The teacher to draw the diagram as given below:

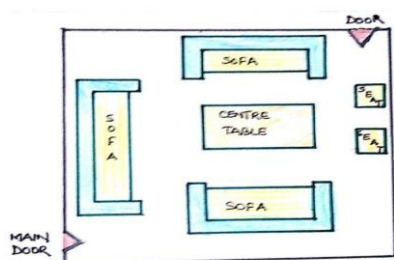
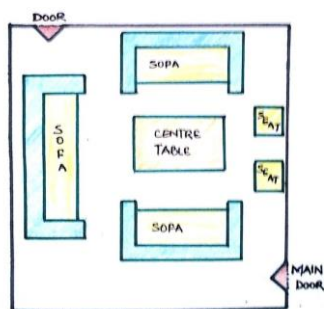
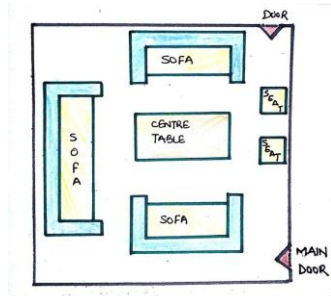
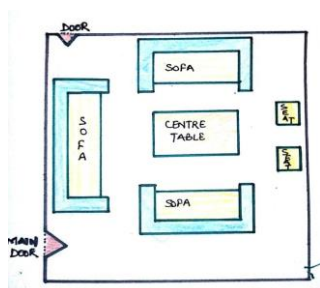


She asks to find the correct deep drawing of the given floor map.



ANS: Top Row Right Picture.

Now watch the video in the presentation and choose the correct floor map of the drawing room shown below:



ANSWER: Third picture from top.

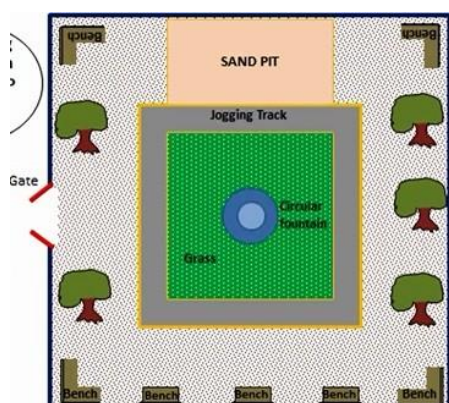
In case the video in presentation does not work, the teacher can show the video in the asset folder.

Image Source: SSSVV Creations.

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Main Script	Solid Geometry	Different views of an object/ views of an object/shape

8. IA_Floor Maps

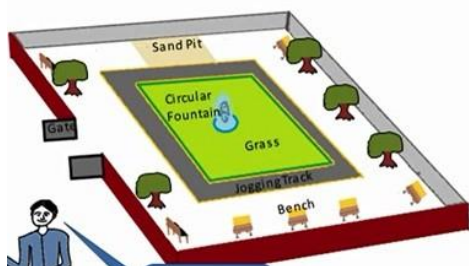
I - FLOOR MAP OF A PARK



Let the teacher ask the students what they see in the floor map of the park. Elicit their response.

The above image is the floor map of a square park. It shows the following:

1. Circular fountain in the centre of the park.
2. Square lawn
3. Square jogging track
4. Rectangular sand pit
5. Rectangular and L shaped benches
6. Gate

DEEP DRAWING To show the length, width and height

Original- VAST

II - FLOOR MAP OF THE BEDROOM

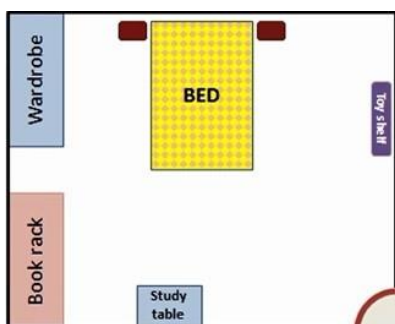
1. Before showing the floor map of a bedroom, let the teacher ask the students to think about the various items that are found in a bedroom.

For eg. bed, door, study table, cupboard or wardrobe, etc.

2. Show the floor map of the bedroom.

3. Ask them to identify the various structures and their shapes.

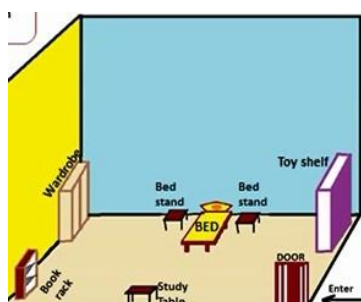
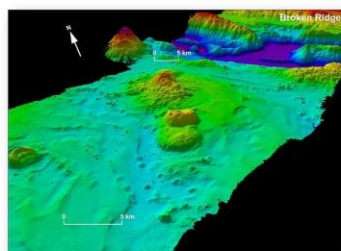
4. Elicit responses from the students how the floor map will be drawn.



The above image is a floor map of a rectangular bedroom.

It shows the following:

1. A rectangular bed
2. 2 rectangular bed stands

3. A rectangular study table**4. A rectangular book rack****5. A rectangular wardrobe or cupboard****6. A rectangular toy shelf****7. Door represented by an arc****DEEP DRAWING OF A BEDROOM:****III - FLOOR MAP OF THE OCEAN FLOOR:**

The ocean floor is literally the floor of the ocean. The landscape of the ocean floor is much like what you see on land, just way more dramatic and without all that life. You'll see underwater mountains called seamounts, cliffs, trenches, and abysses These are so deep that no sunlight penetrates. Therefore, the ocean floor map shows sketch of the ocean floor.

How does the ocean floor map help?

- **Seafloor maps helps the ships to sail safely around natural – and human-made – structures on the ocean bottom.**
- **These maps provide information vital to protecting and tracking marine life, allowing us to distinguish marine habitats and help us make decisions for good, sustainable conservation measures.**

IMAGE SOURCE:

I & II - SSSVV Creations

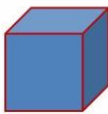
III - - https://commons.wikimedia.org/wiki/File:Three-dimensional_model_of_the_sea_floor_terrain_of_the_UnderwaterSearchAreas_on_the_26_September_2014.jpg

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Interesting Asides	Solid Geometry	Viewing different sections o Viewing different sections o

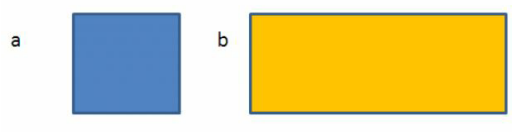
9. QA_Isomeric sketches / Floor Maps

Q 1: What is the difference between Floor Map and Deep Drawing?

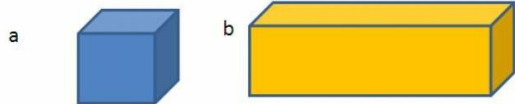
ANS:

Floor Map	Deep Drawing
It is a 2-dimensional figure	It is a 3-dimensional figure
Ex: Floor map of a cube appears like a square	Ex: Deep drawing appears as a cube
	

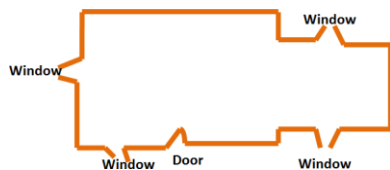
Q 2 : Draw the deep drawing of the following shapes:



ANS:



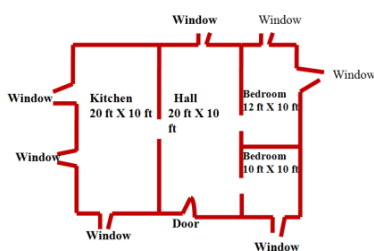
Q 3: Look at this floor map of a room. Make a deep drawing of it.



ANS : Deep Drawing will look like

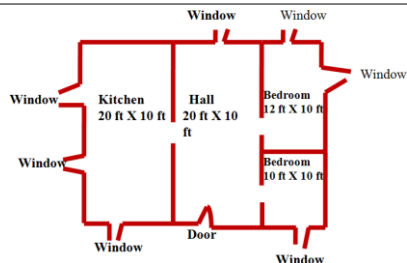


Q 4 : Look at the picture and answer some questions. Which bedroom has more ventilation and why?



ANS : The larger bedroom has more windows. That is why it is more ventilated.

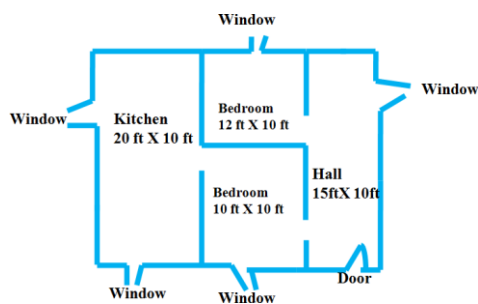
Q5 : Say True or False.



- a.) The breadth of the hall is 20 ft.
 b.) The kitchen is as long as the hall.
 c.) There are three bedrooms in the house.

ANS : a) F b) T c) F

Q 6 : Analyse the given floor maps of the house and answer some questions.



Choose the correct answer

1. The total no. of windows in this house is

- a) 5 b) 7 c) 3

2. The total no. of doors including the entrance is

- a) 4 b) 2 c) 3

3. The shape of the hall is

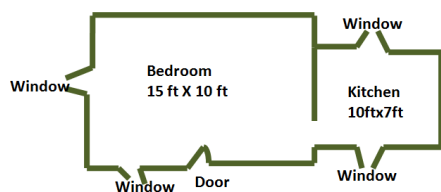
- a) Square b) Rectangular c) Quadrilateral

ANS :

1. a

2. a

3. b

Q 7 : Fill in the blanks

a) The number of windows in the bedroom is_____.

b) The size of the bedroom is_____.

c) The number of the doors in the house including the entrance_____.

ANS :

a) 2

b) 15 ft X 10 ft

c) 2

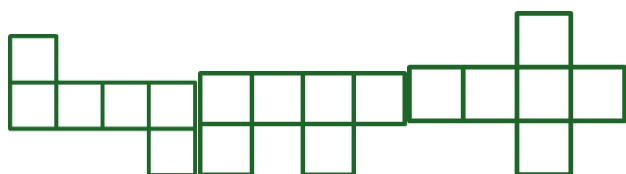
Image Source: SSSVV Creations

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Assessments	Solid Geometry	Different views of an object/ views of an object/shape

10. QA_Think and answer- Nets of Solid Shapes

Watch the Video and answer the questions :

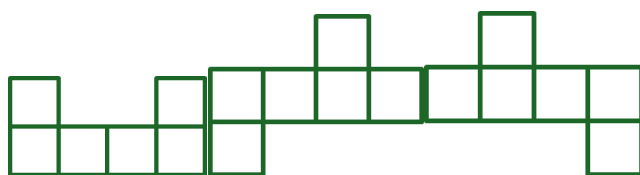
Q1: Which of the following nets can be folded into a closed box?



A

B

C



D

E

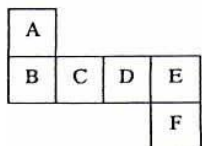
F

ANS : A, C, E, and F

Hints: The easiest way to find a net is to think of a cube as four sides, a top and a bottom.

- Arrange four squares in a line.
- Now put the top square on one side of this line, and the bottom on the other.
- It doesn't really matter where on each side, they all work.

Q2: The diagram shows the net of a cube. Which face is directly opposite A when the net is folded to form the cube?



1. C
2. D
3. E
4. F

ANS: F

Q3: Which solid will be formed by this net when folded?



- A) Prism
- B) Pyramid
- C) Cube
- D) Cuboid

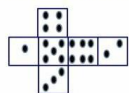
ANS: A) Prism

What is Prism

- A prism is a 3-dimensional shape with two identical shapes facing each other. These identical shapes are called "bases".
- The bases can be a triangle, square, rectangle or any other polygon.
- Other faces of a prism are parallelograms or rectangles.

Q4: The net of a dice is shown below:

The net of a dice is shown:



Which of the following dice cannot be formed using the net.



- A B C D

ANS : B**Hint:** As per the net of the dice given, 1 and 6 should be opposite to each other.**Q5: Write True/False**

- (i) Every cuboid is a cube. ()
- (ii) Every cube is a cuboid. ()
- (iii) The cube has 6 faces. ()
- (iv) Dice is an example of a cube. ()
- (v) All the faces of a cuboid are identical. ()
- (vi) All faces of a cube are similar in shape and size. ()

Ans.

i) False

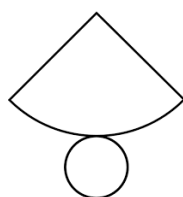
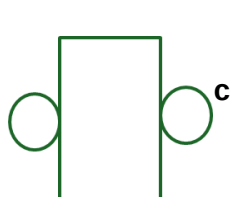
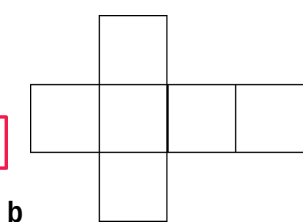
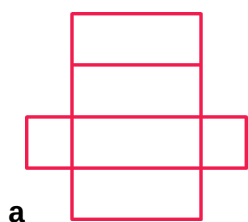
ii) True

iii) True

iv) True

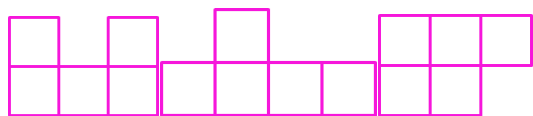
v) False

vi) True

Q6: Name the solid shape that can be formed by each of the following nets.

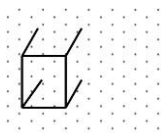
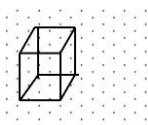
ANS:

a) Cuboid b) Cube c) Cylinder d) Cone

Q7: Which of the following nets can be folded into an open box?**A****B****C****ANS: B**

Hint: First one doesn't work because squares will overlap when the shape is folded. The last one cannot be folded properly because four of the squares are connected together.

The second one can be folded to make an open box. We can check it by cutting and folding.

Q8: Complete the isomeric shape of the given cube with dimensions 3*3*3**ANS:****Q9: Fill in the blanks:**

- (i) The cube and the cuboid each has _____ plane surfaces, _____ edges and _____ vertices.
- (ii) The cuboid has _____ pairs of identical plane surfaces.
- (iii) All the surfaces of a cube are _____ to each other.

ANS:

(i) 6, 12, 8

(ii) 3

(iii) Identical

Image Source - SSSVV Creations

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Assessments	Solid Geometry	Isomeric sketches, Isomeric

11. VC_Boxes and Sketches

Plan your life and reach your goal

“Formaking a house a floor map is first made. Have you ever seen a floor map? It shows where the windows and the doors are in the house.”

Only when the floor plan is made with all minute details, does the builder start building the house. At every step, he refers to the floor plan and works accordingly.

In our life too, planning is very vital. Every activity that is undertaken has to be properly planned. Just as the floor map gives the vision of a house, we must have a vision of the goal. When we have clear and specific goals in front of our eyes, it's easier to get motivated. When a goal is vague, the motivational value is limited.

Here is a story where the master teaches his student how planning and vision are important to reach a goal.

Once a master archer took his disciple to watch a display of his skill. He told his student to blindfold him and he targeted a flower placed few feet ahead.

The disciple thought that the master was going to demonstrate his power of concentration and his ability to hit target blindfolded.

But the Master missed the target completely.

The surprised disciple asked the master what he wanted to prove by that act.

The master said, “I just wanted to show you that no one can ever hit a target they cannot see. To reach one's goals one has to have planning and vision.”

Children! Commitment plays an important role in achieving goals.

When we want something, we have to focus only on that. Setting and meeting goals lead to feelings of satisfaction and accomplishment.

Time to teach	Value Type	Value Sub Type	Value Attribute
10 Minutes	Right Action		Stories

12. MS_Summary - Boxes and Sketches

Summary of BOXES & SKETCHES:

In this chapter we have:

- Revisited 2D shapes which have only length and breadth.
- Learnt how the geometrical 2D shapes transition into 3D shapes.
- Studied about 3D shapes having length, breadth and height.
- Learnt more in detail about the cube and how it can be made.
- Got a deep understanding of 'Floor Maps' and 'Deep Drawings'. Learnt that the former is 2 Dimensional and the later is 3 Dimensional.
- Discovered that when the 3D shapes are opened we get the 'Net of the shape'.
- Also learnt that some 3 D shapes have different 'Nets'.
- Learnt about the various 3 D shapes and their nets. Also understood the physical specifications of many geometrical 3D shapes.
- Finally realised the importance of planning in life to reach the set goal.

Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Main Script	Solid Geometry	