

**Vedic Mathematics, Science & Technology
Teacher Course**

By Dr. S. K. Kapoor

INTERNAL STRUCTURAL CHASE OF CUBE

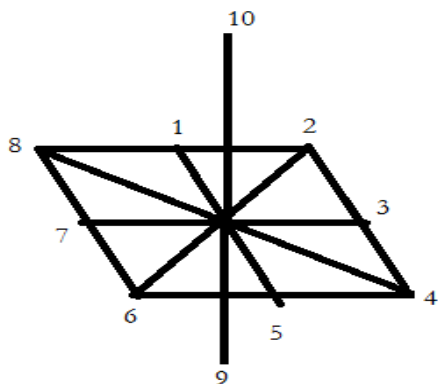
This day the course focus is upon 'Internal structural chase of cube'. It four folds aspects being taken up are as follows:

9. Ten directional frame
10. Ninth sub cube
11. Cube as hyper cube 3
12. Linear dimensional order

The values being covered are to be taught as lessons numbers 9 to 12 to the students of 3-space Vedic Mathematics, Science & Technology.

LESSON-9

TEN DIRECTIONAL FRAMES



1. It will be blissful exercise to fix the cube the cube in terms of ten directional frames.
 - (i) East is the first direction.
 - (ii) East-South is the second direction
 - (iii) South is the third direction
 - (iv) South-West is the fourth direction
 - (v) West is the fifth direction
 - (vi) West-North is the sixth direction
 - (vii) North is the seventh direction
 - (viii) North-East is the eight direction
2. Of these, East-South, South-West, West-North and North-East are designated as sub directions while above eight directions are formatted along the axes and diagonals of plane.
3. Ninth and tenth directions are formatted vertically upward and vertically downward along the third axes of a three dimensional frame with first two axes making a plane of eight directional (a set up of four direction and four sub direction).
4. It would be relevant to take note that the quadruple direction namely east, south, west and north are formatted along the pair of half dimensions of first axis and pair of half dimensions of second axis of the plane (2-space).
5. It also would be relevant to take note that 2-space accepts a synthetic format of a pair of two dimensional frames of half dimensions of opposite orientations.
6. It is this set up which makes north and south a pair of direction of the format of opposite orientation of a pair of half dimensions.
7. Likewise, east and west as well accepts format of a pair of half dimensions of opposite orientations.

8. The quadruple sub direction, together as well get a formatting parallel to the set up of a two dimensional frame of full dimension being a synthetic set up of a pair of 2 dimensional frames of half dimensions.
9. One may have a pause here and take note that the pair of diagonals of a square (plane) as well constitute a two dimensional frame of full dimensions of a synthetic format of a pair of two dimensional frames of half dimensions.
10. It would further be a blissful exercise to approach ninth and tenth direction as a format of a dimension, as a synthetic set up of a pair of half dimensions of opposite orientations.



10

NINTH SUB CUBE

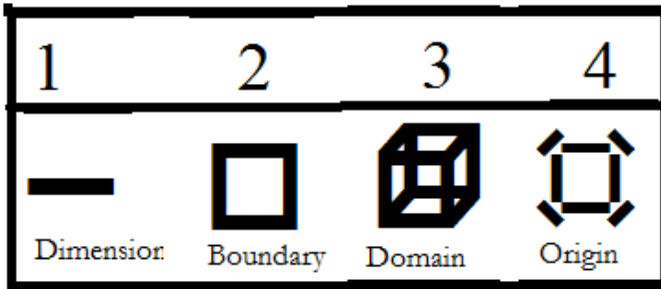
1. The translation along the diagonals of 3 dimensional frame of half dimensions from the corner points and their reach at the centre of the cube, creates a set up of centre of the cube getting superimposed by the origins of eight 3 dimensional frames of half dimensions.
2. Further translation, in a way would amount to making of the set up of the cube as a set up of eight sub cubes.
3. With each sub cube, as well being of structural format of a cube itself, it shall be making spilt for each sub cube as well being of eight sub-sub cube.
4. Each sub cube shall be having a inner most sub-sub cube with inner most corner being of placement at the centre of the cube itself.

5. Eight sub-sub innermost cubes of all the eight sub cubes, together synthesized the set up of a sub cube.
6. This synthetic sub cube of inner most eight sub sub cubes of eight sub cubes, is designated as the ninth sub cube.
7. One may have a pause here and take note that it is because of this ninth sub cube, with centre superimposed upon the centre of the original cube, because of which every point cube is full of the entire structure of the cube.
8. It is this feature of the structural set up of the cube, which deserves to be comprehended well.
9. It is this structure of the sub cube, which also brings face to face with the centre being the seat of the origin being enveloped by solid boundary of eight components.
10. It further bring us face to face with the distinctive feature of the origin of 3-space with 3-space itself remaining at the boundary of the origin.
11. It is this distinctiveness which takes us a head of 3-space, to 4-space and higher spaces compactified at the centre of the cube as a seat of origin.
12. Reach from 3-space to 4-space, conceptually is a reach by way of transcendence from 3-space to 4-space.
13. It is a reach from cube enveloped within spatial boundary to hyper cube 4 enveloped within solid boundary.
14. One shall sit comfortably and to permit the mind to comprehend the features and values of the set up of the 9th sub cube and sequential reach steps up-till the centre of the cube as a seat of origin of 3-space.



LESSON-11

CUBE AS HYPER CUBE 3



HYPER CUBE:-

1. Hyper cube is a set up of four folds, namely
 - (i) Dimensional fold
 - (ii) Boundary fold
 - (iii) Domain fold, and
 - (iv) Origin fold
2. Dimensional fold leads to the dimensional frame for the domain fold.
3. Boundary fold leads to geometric envelop of the domain fold.
4. Domain fold is a manifested space content within geometric envelop and the dimensional frame.
5. Origin fold is enveloped within the domain fold as point space content of the next dimensional space.

MANIFESTATION LAYER:-

1. Hyper cube is a four folds manifestation layer of four consecutive dimensional spaces respectively playing the role of dimensional fold, boundary fold, domain fold and origin fold.

2. Four folds manifestation layer with N -space content playing the role of dimension ($N+1$ space), playing the role of boundary fold, ($N+2$) space playing the role of domain fold and ($N+3$) space content playing the role of origin fold is designated as hyper cube ($N+2$).
3. One may have a pause here and take note that it is the domain fold, which plays prominent role in manifestation of manifestation layers, and as such, it is designated and conceptually approached in terms of domain fold, as in the above expression, the four fold manifestation layer of quadruples values ($N, N+1, N+2, N+3$) / (N -space content, $N+1$ -space content, $N+2$ -space content, $N+3$ -space content) is being taken as a focus upon ($N+2$) space content manifesting as domain fold.
4. It would further be relevant to take note that N -space content as domain fold of hyper cube N , here in reference to ($N, N+1, N+2, N+3$) manifestation layer of hyper cube $N+2$ is playing the role of dimensional fold.
5. Likewise $N+1$ -space content as domain fold of hyper cube $N+1$) plays the role of boundary fold of four folds manifestation layer ($N, N+1, N+2, N+3$) of hyper cube $N+2$.
6. And, $N+3$)space content as domain fold of hyper cube $N+3$), here plays the role of origin fold of four folds manifestation layers ($N, N+1, N+2, N+3$) of hyper cube $N+2$).
7. One may further have a pause here and take note that the space content as domain fold plays different roles as dimension fold, boundary fold and origin fold of respective hyper cubes.
8. It would further be blissful to take note that each space content manifest as domain folds, and the same as

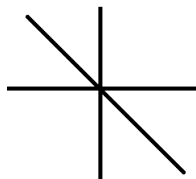
domain fold plays the roles of other folds like dimension fold, boundary fold and origin fold for respective hyper cubes.

9. 4 folds manifestation layer ($N, N+1, N+2, N+3$) for $N=1$ as (1, 2, 3, 4) is the four folds manifestation layer of hyper cube 3.
10. Here, one space content plays the role of linear dimension / axis.
11. Two space contents play the role of spatial boundary.
12. Three space contents manifests as domain fold / solid domain (volume).
13. 4-space content plays the role of origin fold.
14. One shall revisit the above feature of hyper cube 3 as a four folds manifestation layers (1, 2, 3, 4) / (1-space as dimension / axis, 2-space as spatial boundary, 3-space as solid domain / volume and 4-space as origin), as is the set up of the cube.
15. It will blissfully bring us face to face with the set up of the cube being of the format of hyper cube.
16. It is this comprehension as that cube is hyper cube 3, which shall be imbibed fully.
17. It is with the imbibing of these features and value of the set up of the cube as hyper cube 3, which shall be leading to proper insight and appropriate enlightenment about 3-space Vedic Mathematics, Science & Technology.



LESSON-2

LINEAR DIMENSIONAL ORDER



1. Linear dimensional order is there because of one space content plays the role of dimension.
2. Linear dimensional order is there as linear axis constitutes a dimensional frame.
3. Linear order creates four folds manifestation layer (1, 2, 3, 4) / (1-space as dimension, 2-space as boundary, 3-space as domain and 4-space as origin) of hyper cube 3, the representative regular body of 3-space.
4. One may have a pause here and take note that representative regular body does not prefer any dimension over any other dimension of the dimensional frame of the body.
5. Cube is the representative regular body of 3-space.
6. Sphere is also another representative regular body of 3-space.
7. Linear dimensional order leads to synthesis of linear dimension, sequentially yielding value (1) for single dimension, value $(1+2) = (3)$ for a pair of dimensions, value $(1+2+3) = 6$ for triple dimensions, value $(1+2+3+4) = 10$ for quadruple dimensions and so on the value for N dimensions comes to be $(1+2+3+4+...+N = N(N+1)/2)$.
8. One shall, for the present, accept by way of definition, the above linear dimensional synthesis values sequence

as (1, 3, 6, 10, 15, 21, ...) of synthesis values of single, double, triple, quadruple and higher number of dimensions.

9. This feature will help us appreciate the parallel formats of mathematics of artifices of numbers and of dimensional axes.
10. The quadruples values (1, 2, 3, 4) and parallel to it quadruple manifestation folds (1-space as dimension, 2-space as boundary, 3-space as domain, 4-space as origin) will also bring us face to face with the role of single axis as dimensional fold, pair of axes as boundary fold, triple axes as domain fold and quadruple axes as origin fold.
11. It would further bring us face to face with the role of $(1+2) = 3$ and the linear dimensional frame being of three dimensions set up.
12. Further $(1+2+3) = (6)$ will bring us face to face with the spatial boundary being of six surface plates.
13. Still further $(1+2+3+4) = (10)$ will bring us face to face with ten directional frame for the domain fold creations of linear order.
14. Here it would be relevant to take note that ten direction frame accepts 8 directions (of a pair of dimensions set up) + 2 directions (along third directional as upward and downward direction).
15. Here it would be further relevant to take note that three space domain (volume of cube) permits split as eight sub cubes.
16. One shall comprehend and imbibe above values of a linear order creation of cube as hyper cube 3 of four folds manifestation layer (1, 2, 3, 4).

