VEDIC MATHEMATICS, SCIENCE & TECHNOLOGY TEACHER COURSE

By Dr. S. K. Kapoor

TEACHING FOCUS

This day the course focus is upon 'Teaching Focus'. It four folds aspects being taken up are as follows:

53. Teaching focus
54. Internal Diagonal As A Translation Path
55. Different role of 3-space
56. Spatial Boundary As Six Place Value Format

The values being covered are to be taught as lessons numbers 53 to 56 to the students of 3-space Vedic Mathematics, Science & Technology.

LESSON-53

TEACHING FOCUS

1. Teaching focus shall be upon the practical understanding and comprehension of the external as well as internal set ups of the bodies of 3-space.
2. The external under standing in a way is going to be, comparatively easy, as much as that the same can be observed as geometric envelop of the solid content of the 3-space bodies.
3. However, as for as, the internal set up of the solid bodies is concerned with respect to in,   naturally, the

www.vedicganita.org/vmcourses

observation as such, in the presence of geometric envelop, would be negated, as well as the understanding by observation would be concerned.

4. Therefore, one way to approach the internal set up of a solid body, at a first instance shall be in terms of an empty cube, which would mean that the volume part (domain part of the set up of the cube, is in a void state, that is, the 3-space content stands pumped out.

5. The empty state cube, would be just the geometric envelop of the cube and the space within it.

6. Space within the cube, will permit coordination from inside for the eight corner points, in term of quadruple internal diagonals.

7. Likewise the space can be superimposed a three dimensional frame with origin superimposed at the centre of the cube.

8. Still further the space within a cube, will accepts a ten directional frame.

9. These features, together with the permissibility of the split of 3-space within a cube, into eight octants, will bring to focus, another set of feature for the inner space of the cube.

10. Practical exposure for the above feature can be had by having a proper demonstration kit of the structural components of a cube.

11. One can construct a cube, with the help of structural component from the said kit.

12. These experimental exercises, may be manipulated in different aspects, and the same shall be perfecting understanding and comprehension of the internal and external structural of the cube.

13. Likewise, one may approach other 3-space bodies, like sphere, cylinder, cone, pyramid, and other irregular solid bodies and containers.

14. Structural components parallel to points, edges, surfaces and volume (solid domains), in their standardized forms, can be availed for practical demonstration of split of a cube into eight sub cubes, and also into 64 sub-sub cubes.

15. It would be a blissful exercise to demonstrate the structural set up of ninth sub cube, as a synthetic set up of inner most sub-sub cubes of all the eight sub cubes.

16. It also would be blissful to demonstrate the existence of external three dimensional frames of half dimensions available at each of the eight corner point of the cube.

17. Further, it would be blissful to demonstrate the centre of the cube is a seat of hyper cube 4, a 4-space domain enveloped within solid boundary of eight components.

■

LESSON-54

INTERNAL DIAGONAL AS A TRANSLATION PATH

1. Teacher shall practically demonstrate the internal diagonal of a cube being the translation path for the three dimensional frame of half dimension embedded in the corner point of the cube as end points of the internal diagonal.

2. It shall be, in a very gentle steps be demonstrated that the three dimensional frame embedded in the corner of the cube can be translated inward towards center of the

cube by origin of the three dimensional frame translating along the internal diagonal itself.

3. Further, the situation of the reach of the origin of three dimensional frame at the centre of the cube, shall be captured comprehensively, with a focus upon the placement of three axes of the translated three dimensional frame.

4. At this stage, the second three dimensional frame embedded in the other corner point of the cube, shall be put into translation state.

5. The phase and stage of second three dimensional frame, with reach for its origin at the centre of the cube, shall be comprehended comprehensively.

6. One shall glimpse and imbibe the set up of the phase and stage of origins of both the three dimensional frames getting superimposed at the centre of the cube itself.

7. It shall be a phase and stage of a pair of three dimensional frame of half dimensions getting synthesized and making a set up parallel to the set up of a three dimensional frame of full dimensions.

8. Likewise, one can have a translation for the pair of three dimensional frame of half dimensions along each of the other three internal diagonals and thereby would emerge triple three dimensional frame of full dimensions set ups.

9. Likewise, there would be an attainment of synthetic set up of quadruple three dimensional frame of full dimensions.

10. These quadruple of full dimensions of together with the three dimensional frame of full dimensions, already available with the origin of the centre of the cube, will

make a set up of five three dimensional frame of full dimensions.

11. The availability of five three dimensional frame of full dimensions, is parallel to the lead of five solid dimensional frames of 5-space.

12. It is this feature, which deserved to be comprehended well as with the comprehension and appreciation one may be acquiring proper insight about 5-space playing the role of origin of 4-space.

13. Further, it also shall be helping acquire appropriate enlightenment about the phenomenon of compactified origins at the centre of the cube itself.

14. It is this feature, which deserves to be imbibed fully.

■

LESSON-55

DIFFERENT ROLES OF 3-SPACE

1. Teacher shall very gently expose students to the phenomenon of different role of 3-space.

2. Firstly students shall be exposed to the prominent role of 3-space, as domain fold of 3-space bodies, like that of volume (domain) of cube.

3. Thereafter, student shall be very gently exposed to the role of solid boundary of 4-space bodies, particularly, hyper cube 4, the representative regular bodies of 4-space accepting solid boundary of eight components.

4. A step ahead, student shall be exposed to 3-space in the role of solid dimension of 5-space, accepting a dimensional frame of 5 solid dimensions.

5. One may to expose the student for different role of 3-space would be to focus upon the set up of cube as a 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, a step ahead the next four fold manifestation layer (2, 3, 4, 5) of hyper cube 4 will help focus upon 3-space in the role of solid boundary of 4-space.

6. A step further ahead, the four fold manifestation layer (3, 4, 5, 6) of hyper cube 5 will help focus upon the role of 3-space as solid dimension of 5-space.

7. A step ahead, one may with the help of a four folds manifestation layer (0, 1, 2, 3) of hyper cube 2, it can be brought to point to attains that 3-space plays the role of origin of hyper cube 2/ square.

8. It would be blissful to take note that all the above role of 3-space, can be expressed along the north east diagonal of following 4x4 grid / matrix:

0	1	2	3
1	2	3	4
2	3	4	5
3	4	5	6

■

LESSON-56

SPATIAL BOUNDARY AS
SIX PLACE VALUE FORMAT

1. Teacher shall demonstrate spatial boundary of cube being a six place value format.

2. At initial step, with the help of a cube, it be practically demonstrated that cube is of seven versions, and out of the same, one of the version is free of, all of its surface plates.

3. This initial phase and stage of cube is of zero number of surface plates.

4. At next stage, it be demonstrated that cube accepts as many as six surface plates.

5. Now it be demonstrate that each surface plate as square / hyper cube 2 is having 3-space in the role of origin.

6. As such, all the six surface plates, at its at their origin shall be having a seat at centre of the square, will be envelop by six surface plate each and thereby there would emerge as many as many $6\times6 = 36 = 6^2$ numbers of surface plates.

7. A step ahead, 36 surface plates shall be having a seat of cube enveloped within six surface plate each, thereby there would emerge, as many as many as $36\times6 = 216 = 6^3$ number of surface plates.

8. One may have a pause here and have a revisit of above sequential emergence of surface plates in the order 6x1, 6x2, 6x3, and this sequential emergence will lead to whole range of sequential progression 6x1, 6x2, 6x3, 6x4, …, parallel to the need of the six place value system.

9. This feature of spatial boundary of 3-space deserves to be comprehended fully. ∎