

## Atomic and Molecular Model sets

### SHAPE OF SEVEN CRYSTALS (EC.102.42)

These models clearly explain how the basic 7 types of crystals look like and why they differ with each other. You can measure the angle & axes like  $a = b = c$  etc. You can explain the centre of symmetry also in each crystal.

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Type

- .01 Cubic
- .02 Tetragonal
- .03 Rhombohedral
- .04 Hexagonal
- .05 Orthorombic
- .06 Monoclinic
- .07 Triclinic

Sizes of these models vary between 8 cms & 15 cms.

### SHAPES OF POLYHEDRA (EC.102.43)

These multi-utility models are indeed an asset in explaining the basic shape. Models of perfect shape made of transparent acrylic plastic to give a clear 3 dimensional idea to students. You can also show the axis.

Type

- .01 Cube
- .02 Tetrahedron
- .03 Octahedron
- .04 Square Pyramid
- .05 Pentagonal Pyramid

#### BIPYRAMIDS

- .06 Triangle Bipyramid
- .07 Pentagonal Bipyramid
- .08 Hexagonal Bipyramid

Size from .01 to .05 between 10.5 cm & 18 cm.

Size from .06, .07, .08 between 20 cm & 25 cm.

### TRANSPARENT MODELS (EC.102.44)

Teachers explaining the structure of crystals with these new type of models made of transparent acrylic plastic. They offer an easy and direct way to familiarize the student with Crystal Lattices by focusing on the 3 dimensional arrangement of ions in crystals. The Atoms in various shape are molded with Styrene and pasted inside the models with solvents. Size of the atoms based on Ionic Radii. Colours of atoms as per scientific tradition. number easily.

#### UNIT CELL STRUCTURES

- .01 Sodium Chloride
- .02 Calcium Chloride
- .03 Potassium Chloride
- .04 Diamond
- .05 Graphite
- .06 Silicon
- .07 Germanium
- .08 Aluminum
- .09 Neon
- .10 Black Phosphorous

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- .11 Fluorite
- .12 Rutile
- .13 Zinc Blende
- .14 Wurtzite
- .15 Calcium Carbide
- .16 Boron Nitride

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#### Closing Packing

- .17 B.C.C (Iron)
- .18 F.C.C (Copper)
- .19 H.C.P (Zinc)

Sizes of these models vary between 9 cm & 18 cm, depending upon the structure.

#### ATOMIC & HYBRIDE ORBITAL MODELS SET (EC.102.45)

The Marvelous set of Orbital Models offer an easy 3 dimensional approach to the Quantum Machine & its application to Chemical bonds. These are bright, large, colourful and sturdy.

The unique advantages of our model are

- a) The perfect shape of each orbital can be shown
- b) The Positive & negative regions of the orbital are indicated with the shade of colour.
- c) The cross sections of orbital to pinpoint the inner orbital regions, nodal planes & probable electron regions.
- d) The convenience of splitting the model into two halves to show nucleus

Atomic Orbital	Hybrid Orbital
.01 1S orbital & its cross section	Hybride SP
.02 2S orbital & its cross section	Hybride SP2
.03 3S orbital & its cross section	Hybride SP3
.04 P orbital & its cross section	
.05 dx <sup>2</sup> -y <sup>2</sup> & its cross section	
.06 dz <sup>2</sup> its cross section	
Combination of 2S & 3P & its cross section	
.07 Complete set of 6 orbital as listed above. supplied in a plastic case with a Teacher's Guide.	

#### HYBRID & MOLECULAR ORBITAL MODELS SET (EC.102.46)

Teaching the complicated shapes of Molecular Orbital become so simple to explain with this set. These colourful & 3 dimensional Models show the correct shapes of orbitals, the nodal planes relating to the bond axis and nuclear axes. You can also split the model to show nucleus. Darker & lighter shades in indicate Positive & Negative regions. Complete set is supplied in a plastic case with a Teacher's Guide. The contents are as listed below :

Hybride orbitals		Molecular orbitals
Hybride dsp <sup>2</sup> orbitals	Bonding	s S
Hybride dsp <sup>3</sup> orbitals	Anti-Bonding	s S
Hybride d <sup>2</sup> sp <sup>3</sup> orbitals	Bonding	s P
	Anti-Bonding	s P
	Bonding	s SP
	Anti-Bonding	s SP
	Bonding	p Py
	Anti-Bonding	p Py
	Bonding	p Py' p Pz

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## SIMPLE INORGANIC MOLECULE KIT (EC.102.47)

The basic Concepts about the Principles of molecular shape made easy. This kit offers a lot of 3 dimensional Models with a visual appreciation of Molecular Bonding. You can demonstrate how the shapes of Molecules are determined by the number of bounds plus the lone pairs in the valence shell of the centre atom. Showing lone pairs a unique specialty with these models. To show the molecule based on tetrahedron you can make methane, for triangle bypyramid, you can make phosphorus pentachloride, and for octahedron you can build sulphur hexaflouride and so on.

Some of the structures : CO<sub>2</sub>, CH<sub>4</sub>, PCI<sub>5</sub>, SF<sub>6</sub>, NH<sub>3</sub> H<sub>2</sub>O BCl<sub>3</sub>, Sulphur ring S<sub>8</sub> Oxides of Nitrogen, Phosphorous P<sub>4</sub> molecule, H<sub>2</sub>SO<sub>4</sub>, Simple Complexes & many more.

Contents : Oxygen, Nitrogen, Sulphur, Phosphorous, Chlorine, Hydrogen, Covalent & Multiple. (total components about 140 nos. within a smart plastic case. A teachers guide/instruction manual with full details on how to make all these models and more).



## ORGANIC MOLECULAR BUILDING KIT (EC.102.48)

Innovatively designed for your convenience. This kit offers you the models for almost all the important structure covering each and every topic. The main specialty is the design of our atom with moulded prong to provide maneuverability for rotation. You can show the electron clouds. Separate tubes provided for covalent & multiple bonds. Hence, these models are way ahead of the ball & Stick type.

With this kit, you can build plenty of models. Saturated Hydrocarbons, unsaturated hydrocarbons, Functional groups : Alkanes, Alkenes, Alkynes, Alcohols, Aldehydes & Ketons, Benzene & its Derivatives, etc. & many more.

Contents : Carbon, Oxygen, Nitrogen, Chlorine, Sulphur, Phosphorous, Hydrogen -atoms, Covalent bond, Hydrogen bonds & Multiple Bonds (Total components about 200 nos. within a smart plastic case. A teachers guide/instruction manual with full details on how to make is also provided).



## MOLECULAR MODEL SET (EC.102.49)

Made of plastic. for modelling three dimensional simple or complex molecular structures of organic and inorganic compounds with universal code for atoms. All Items of set are packed in compartmented velvet lined wooden box, outer rexine with instructions.

The set contains following elements : -

- A. Black balls represent Carbon Ethylenic and Acetylenic Tetrahydral.
- B. Yellow balls Big represents Sulphur, Selenium etc.
- C. Yellow balls small represents Aluminum, Chromium etc.
- D. Green balls represents Halogens (Monovalent Non metals).
- E. Orange balls big represents Sodium Potassium etc. (Monovalent)
- F. Orange balls small represents Calcium, Magnesium etc. (Divalent)
- G. Blue balls represents phosphorous etc. (Tri or pentavalent)
- H. Red balls small represents Oxygen.
- I. White balls with legs represent Hydrogen.
- J. Lugs.

Type No. of components

- .01 Set of 60 balls with polyethene linkages of different sizes.
- .02 Set of 90 balls with polyethene linkages of different sizes.
- .03 Set of 120 balls with polyethene linkages of different sizes.
- .04 Set of 240 balls with polyethene linkages of different sizes.
- .05 Set of 350 balls with polyethene linkages of different sizes.

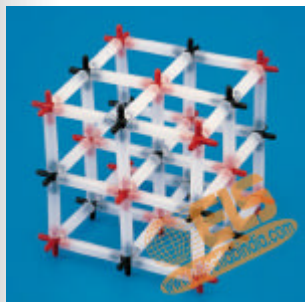


## MOLECULAR MODEL SET (EC.102.50)

These sets consists moulded balls of different colours and sizes along with connecting lugs of different sizes. These sets are very helpful in modeling different organic and inorganic compounds.

Type No. of components

- .01 SENOIR SET : These set consists of 150 lugs & 370 balls of prescribed colours and sizes packed in box having separate space for every particular colour and size of ball.
- .02 JUNIOR SET : These set consists of 30 connecting lugs and 75 balls in different sizes and colours in a box.



## CRYSTAL MODELS (EC.102.51)

These crystal model sets are used for demonstrating students various crystal lattices, which are in skeletal form. These models can be easily assembled or disassembled. The lattices represent certain classic structures and have been built to a large enough size so that their different faces can be seen. Complete with assembly instructions

- .01 Graphite Model : Set consists of 69 connectors, 8 long black connectors, 45 black jacks and 12 red jacks in a box with instruction manual for construction.
- .02 SODIUM CHLORIDE MODEL : Set consists of 54 connectors 13 black jacks and 14 red jacks in a box with instruction manual for construction.
- .03 DIAMOND MODEL : Diamond Crystal consists of 84 Connectors and 57 jacks in a plastic box with instructions manual for construction.

