3D Virtual Lab Simulations

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3D Virtual Lab Simulations

Sub-Heading	No.Animations	Time (HH.MM.SS)
Biology	70	00.32.52
Chemistry	160	00.28.09
Physics	170	03.14.29

Biology

Simulation name

1. Sterilization and pasteurization
2. Structure of flower
3. Nitrogen fixation
4. Experiment to check water holding capacity of soil
5. Human skeletal system -1
6. Ear
7. Hepatitis B
8. Permanent slides-I
9. Permanent slides-II
10. Significance of oxygen in seed germination
11. Photosynthesis
12. Photosynthesis
13. Significance of light in photosynthesis
14. Study of respiration in germinating seeds
15. Root modifications
16. Support in aquatic plants
17. Imbibition and endosmosis
18. Water cycle
19. Soil profile
20. Structure of DNA
21. Skeletal system
22. Human skeletal system -2
23. Composition and functions of blood

Biology

Simulation name

24. Human nervous system (I)
25. Plant and animal tissue
26. Separation of leaf pigments by paper chromatography
27. Polymerase chain reaction (PCR)
28. Monoclonal antibodies
29. Stem cells
30. Stem modification
31. Types of leaves - I
32. Hydroponics
33. Aquatic ecosystem
34. Food chain
35. Ecological pyramids
36. Air pollution
37. Recycling
38. Eukaryotic cell
39. DNA replication
40. Tryptophan operon
41. Monohybrid cross
42. Chromosomal mutation
43. Gene mutation
44. Genetic disorders
45. Action of major enzymes in humans (Salivary gland)
46. Human skeletal system -3
47. Osteoporosis

Biology

Simulation name

48. Blood clotting
49. Lymphatic system
50. Blood group and blood transfusion
51. Haemolysis and crenation of RBCs
52. Atherosclerosis (Heart disease)
53. Detection of bile salts in urine
54. Neuromuscular junction
55. Alzheimer's disease
56. Role of insulin in cell metabolism
57. Glucose homoeostasis
58. Types of pathogenic bacteria
59. AIDS: caused by HIV
60. Scoliosis
61. Starfish and snail
62. Fungi II
63. Yeast and fungi
64. Growing rhizopus in lab
65. Plant life cycle - Alternation of generations in bryophytes
66. Alternation of generation in angiosperms
67. Xerophytes, halophytes and mesophytes
68. Bird flight
69. Regeneration among animals
70. Life cycle of frog

Chemistry

Simulation name

1. Common Laboratory Apparatus
2. Compound
3. Compounds of Phosphorus
4. Naming simple compounds
5. Empirical and Molecular Formula
6. Oxides of Metals and Non-metals
7. Physical properties of H2SO4
8. Separation of Liquid-Liquid Mixture
9. Crystallization
10. Valency
11. Desirable and undesirable changes
12. Reaction of Metals with Oxygen
13. Reaction of metals with hydrogen
14. Reaction of metal with chlorine
15. Reactions of Metals with Water
16. Reaction of carbonates and bicarbonates
17. Silver Halides
18. Silver nitrate (AgNO3)
19. Acid Base Titration
20. Chemical properties of bases
21. Classification of Acid, Base and Salt
22. Properties of acids
23. Preparation of bases

Chemistry

Simulation name

24. Universal Indicator
25. Neutralization
26. Liquid Gas Mixture
27. Distillation
28. Centrifugation
29. Chromatography of black ink
30. Separation of rare gases from air
31. Sublimation
32. Laboratory Preparation of Oxygen
33. Lab preparation of CO2
34. Laboratory preparation of hydrogen gas
35. Lab Preparation of Oxygen
36. Destructive Distillation of Coal
37. Destructive Distillation of Wood
38. Balancing Equation
39. Build an Element
40. Variable valency
41. Polar and Non-polar covalent bond
42. Covalent Bond
43. Classical concept of redox reaction
44. Electrons and redox reaction
45. Dobereiner's law of triads
46. Electron Configuration
47. Modern Periodic Table

Chemistry

Simulation name

48. Molecular Mass
49. Physical properties of Hydrogen
50. Physical Properties of Metals - I
51. Properties of Sulphur dioxide (SO2)
52. Chemical Properties of Conc. H2SO4
53. Properties of different states of matter
54. Combination Reaction
55. Decomposition Reaction
56. Displacement Reaction
57. Double Decomposition Reaction
58. Isotopes
59. Osmotic Pressure
60. Conduction of Electricity by Different Liquids
61. Ignition Temperature
62. Changes around us
63. Chemical reactions and their characteristics
64. Corrosion
65. Hardness of water
66. Factors affecting the rate of evaporation of water
67. Water dissolves many substances
68. Bleaching powder
69. Adulteration
70. Chemical formula
71. Compounds and elements present in it

Chemistry

Simulation name

72. Introduction to Functional Groups
73. Reactivity of metals
74. Orbits of Atom
75. Electronic Configuration
76. Oxidation number
77. Chemical Bonding
78. Ionic Bond
79. Hydrogen Bonding
80. van der Waals' forces
81. Lewis Representation
82. Fission of Covalent Bonds
83. Hybridization
84. Electrolysis
85. Assembly of a Standard Hydrogen Electrode
86. Factors affecting products of Electrolysis
87. Application of Faraday's First Law
88. Application of Faraday's Second Law
89. Electrolysis of Water
90. Structural Isomerism
91. Geometrical Isomerism
92. Basic Buffer
93. Acidic Buffer
94. Rate law of Zero order reaction

Chemistry

Simulation name

95. Rate law of First order reaction
96. Rate law of Second order reaction
97. Comparison of Rate Laws
98. Order of the reaction
99. SN1 Reaction
100. Energy changes in reactions
101. Exothermic and Endothermic Changes
102. Entropy
103. Heat of Neutralization
104. Heat of Solution
105. Gay -Lussac's Law
106. Le Chatelier's Principle (Temperature)
107. Solution, Suspension and Colloid
108. Le Chatelier's Principle
109. Dynamic Nature of Chemical Equilibrium
110. Saturated and unsaturated organic compounds
111. Classification of linear hydrocarbons
112. IUPAC Nomenclature of alkenes
113. Diene Compounds
114. Alkynes
115. Reactions of Ethyne
116. Addition Reactions of Alkenes
117. Aldol condensation reaction

Chemistry

Simulation name

118. Contact Process
119. Ostwald Process
120. Haber Process
121. EDTA Titration
122. Redox Titration
123. pH metric Titration
124. Lucas Test
125. Lab Preparation of SO2
126. Lab Preparation of Chlorine
127. Preparation of methane gas
128. Preparation of HCl
129. Phenol Test
130. Preparation of standard solution
131. Laboratory preparation of Soap
132. Fire Extinguisher
133. pH Meter
134. Hess's Law
135. Huckel's Rule
136. Raoult's law
137. Law of constant proportions
138. Charge on colloidal particles
139. Lowering of Vapour Pressure
140. Separation of amines -1

Chemistry

Simulation name

141. Concentration of a solution
142. Bohr's model
143. Change in pH due to Common Ion Effect
144. Chemical properties of carbon dioxide
145. Effect of salt on physical properties of water
146. Properties of Acetic acid
147. Diffusion of gases
148. Directing Groups and Their Directive Effects
149. Adsorption
150. Flame Test
151. Isobars and Isotones
152. Stoichiometry
153. Renewable and non renewable sources of energy
154. Combustible And Non-combustible Materials
155. Formula of Salts
156. Limiting Reactant
157. Factors Affecting Solubility of a Solute
158. States of Matter
159. Oxidation State of Transition Elements
160. Oxidation State of Lanthanide Element

Physics

Simulation name

1. Volume determination of solids
2. Volume of irregular solids
3. Volume of liquids
4. Screw gauge
5. Graphs and their applications
6. Effects of force
7. Types of force
8. Balanced and unbalanced forces
9. Barometer
10. Laws of liquid pressure
11. Lever
12. Principle of lever
13. Faulty balance - I
14. Class - II lever
15. Types of motion
16. Pulley
17. Advantage of pulley systems
18. Mechanical advantage of gear
19. Mechanical advantage of screw
20. Work and energy
21. Friction
22. Factors affecting friction
23. Simple pendulum

Physics

Simulation name

24. Thermometer
25. Combined maximum-minimum thermometer
26. Conduction
27. Transfer of heat by conduction
28. Transparent, translucent, and opaque objects
29. Laws of reflection
30. Effect of rotation of plane mirror
31. Pinhole camera
32. Various sources of light
33. Light and shadow
34. Mirror
35. Periscope
36. Angle of minimum deviation
37. Defects of eye and their correction
38. Components of electric circuit
39. Components of electric circuit
40. Bulb connected to cell
41. Magnetic and non magnetic material
42. Electromagnetic induction
43. Forces and direction
44. Demagnetization
45. Electric bell
46. Efficient use of electrical energy

Physics

Simulation name

47. Electric fuse
48. Heating effect of electric current?
49. Phases of the moon
50. Newton's laws of motion
51. Newton's third law of motion
52. Fan cart
53. Newton's law of gravitation
54. Projectile motion
55. Law of inertia
56. Uniform circular motion
57. Centripetal and centrifugal forces
58. Spring balance
59. Potential energy
60. Kinetic energy and potential energy
61. Inertia
62. Mass and weight
63. Collision
64. Velocity
65. Power
66. Newton's law of universal gravitation
67. Spring pendulum
68. Density
69. Archimedes' principle

Physics

Simulation name

70. Applications of Archimedes' principle
71. Relative density of liquid
72. Equilibrium of floating body
73. Application of floatation
74. Hydrostatic pressure of the liquid
75. Hydrometer
76. Thrust & pressure
77. Rutherford's-Alpha particle scattering
78. Melting point and boiling point
79. Primary colours
80. Regular and irregular reflection of light
81. Multiple reflection
82. Refractive index
83. Refraction of light through glass slab
84. Dispersion of white light
85. Power of lenses
86. Image formation by convex lens
87. Application of Doppler effect in light
88. Prism binoculars
89. Focal length of convex lens by u-v method
90. Telescope
91. Resonance tube
92. Ohm's law

Physics

Simulation name

93. Cells in series and voltage
94. Series & parallel connection of bulbs
95. Parallel and series connection of resistors
96. Electric potential difference
97. Electroplating
98. Electromagnet
99. Magnetic field due to a straight wire carrying conductor
100. Magnetic field around a solenoid
101. Moving coil loud speaker
102. Relay switch
103. Lenz's law
104. Electric generator
105. Electric motor
106. Construction of DC motor
107. Types of capacitor
108. Power dissipation in AC and DC circuits
109. Resistance of wire
110. Physical quantities and SI units
111. Derived physical quantities
112. Stellar parallax
113. Applications of Hooke's law
114. Young's modulus
115. Drag force and terminal velocity

Physics

Simulation name

116. Aerofoil
117. Bernoulli’s principle
118. Pascal's law
119. Windturbine
120. Kinetic friction
121. Damped oscillation
122. Viscosity
123. Brownian motion
124. Maltese cross tube
125. Photoelectric effect
126. Linear thermal expansion
127. Coefficient of cubical expansion
128. Thermal conductivity
129. Boyle's and Charle's law
130. Specific heat
131. Refraction and total internal reflection
132. Applications of total internal reflection
133. Refraction and total internal reflection
134. Compound microscope
135. Polarization by selective absorption
136. Ripple tank experiment
137. Spectrometer
138. Velocity of sound in different media

Physics

Simulation name

139. Sonometer
140. Pithball electroscope
141. Conductors and Insulators
142. Voltmeter
143. Parallel connection of resistors
144. Series connection
145. Variable resistors
146. Resistor's colour code
147. Coulomb's-law
148. Electric field around a point charge
149. Kirchhoff's first law
150. Charging of a capacitor
151. Series and parallel connection of capacitors
152. Electric potential around a point charge
153. e.m.f and Internal Resistance - II
154. Potentiometer and its application
155. Use of potentiometer to find unknown e.m.f.
156. Potentiometer
157. Wheatstone bridge
158. Transformer
159. Faraday's law
160. Lorentz force
161. Factors affecting inductance

Physics

Simulation name

162. Electrical resistance
163. Joule's experiment
164. Magnetic field around circular coil
165. Magnetic field produced by current
166. Particle in magnetic field
167. Conduction of electricity through liquids
168. Static electricity
169. Logic gates
170. Half wave rectifier