



Modules Selection Guideline

Common Modules	Data Logger(M01), Interface (BT) (M02), Data Wire, Sensor Wire, Pad Terminal
Optional Modules	Wireless Interface(M03), Wireless Transmitter(M04), Data Display Module(M05)

- Physics Experiment (Based on Special Software) -

No.	Experiment	Sensor required	Lab equipment required
1	Study uniform linear motion	Displacement Sensor(S06)	Multi-purpose Track Motion System and Accessory(E01)
2	Measuring the instantaneous velocity	Photo Gate Sensor(S09)	Multi-purpose Track Motion System and Accessory(E01)
3	Obtain acceleration from v-t Figure	Displacement Sensor(S06)	Multi-purpose Track Motion System and Accessory(E01)
4	Force composition and resolution I	Force Sensor(S01/S02/S03) × 2	Force Resolution and Composition Apparatus(E04) or Force Resolution on an inclined plane(E05)
5	Force composition and resolution II	Force & Angle Sensor(S05)	Smart Force Disc(E06)
6	Equilibrium of two forces	Force Sensor(S01/S02/S03), Photo Gate Sensor(S09)	Two Force Equilibrium Apparatus(E11)
7	Newton's second law	Displacement Sensor(S06)	Multi-purpose Track Motion System(E01)
8	Overweight and weightlessness	Force Sensor(S01/S02/S03)	
9	Force interaction	Force Sensor(S01/S02/S03) × 2	
10	The motion images of spring oscillator	Displacement Sensor(S06)	Spring Oscillator Apparatus (Conventional)
11	Acoustic vibration image	Sound Sensor(S20)	Audio Signal Generator(E19), Tuning Fork (Conventional)
12	Study acoustic phenomenon with acoustics software		Acoustics Software(W02)
13	Dimension of object kinetic energy	Photo Gate Sensor(S09)	Multi-purpose Track Motion System and Accessory(E01)
14	Study the conservation of mechanical energy	Photo Gate Sensor(S09)	Mechanical Energy Apparatus(E03)
15	Study centripetal force I	Force Sensor(S01/S02), Photo Gate Sensor(S09)	Centripetal Force Apparatus(E02)

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16	Study centripetal force II		Wireless Centripetal Force Apparatus
17	Application of solar energy	Temperature Sensor(S12/S13) × 3	Thermal Radiation Apparatus(E18)
18	The relation between gas pressure and volume	Pressure Sensor(S17/S18)	
19	The relation between gas pressure and temperature	Pressure Sensor(S17/S18), Temperature Sensor(S12/S13)	Charles' Law Apparatus(E14), Far-infrared Heater(E13)
20	Temperature increment by friction work	Temperature Sensor(S12/S13)	Friction Apparatus(E17)
21	Description of light bulb's U-I images	Current Sensor(S25/S26), Voltage Sensor(S29/S30/S32)	EXB Series Circuit Experiment Board(E27), Student Power Supply(E31)
22	Measurement of the magnetic induction intensity of electric solenoid	Magnetic Induction Sensor(S33/S34)	Solenoid(E21), Student Power Supply(E31)
23	Induced current during the change of minute magnetic flux	Micro Current Sensor(S28)	High Sensitivity Coils(E22)
24	Light distribution rule in single slit diffraction	Illumination Distribution Sensor(S24)	Optics Kit(E20)
25	Examination of radioactivity of matter	G-M Sensor(S36)	
26	Horizontal projectile motion	Photo Gate Sensor(S09)	Projectile Motion Apparatus(E07)
27	Theorem of momentum (variable force)	Force Sensor(S01/S02), Photo Gate Sensor(S09)	Multi-purpose Track Motion System and Accessory(E01)
28	The relation between the size of induced electromotive force and the speed of magnetic flux change	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!	Faraday's Law Apparatus I(E36) (include Photo Gate Sensor(S09))
29	Faraday's law of induction II	Magnetic Induction Sensor(S33/S34)	Faraday's Law Apparatus II(E37), Smart Power Supply(E32)
30	Specific heat capacity	Temperature Sensor(S12/S13) × 2	Far-infrared Heater(E13)
31	Friction force	Force Sensor(S01/S02/S03)	Friction Apparatus(E09)
32	Law of resistance	Current Sensor(S25/S26), Voltage Sensor(S29/S30/S32)	Resistance Law Apparatus(E30)

33	The relation between electromotive force and the external voltage and internal voltage of power supply.	Current Sensor(<i>S25/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	
34	Study the characteristics of semiconductor thermoelectric power generation chip	Temperature Sensor(<i>S12/S13</i>) × 2 , Voltage Sensor(<i>S29/S30/S32</i>)	Thermocurrent Apparatus(<i>E24</i>)
35	The effect of magnetic field on electrical wire	Force Sensor(<i>S01/S02/S03</i>), Current Sensor(<i>S25/S26/S27</i>)	Ampere Force Apparatus(<i>E28</i>)
36	The melting and solidification of crystal	Temperature Sensor(<i>S12/S13</i>)	Far-infrared Heater(<i>E13</i>)
37	Electric balance	Force Sensor(<i>S01/S02/S03</i>)	
38	Projectile motion (2D)	2-D Motion Sensor(<i>E53/E54</i>)	2-D Projectile Motion Apparatus(<i>E55</i>)
39	Centrifugal motion (2D)	2-D Motion Sensor(<i>E53/E54</i>)	2-D Centrifugal Track(<i>E57</i>)
40	Simple pendulum motion (2D)	2-D Motion Sensor(<i>E53/E54</i>)	2-D Simple Pendulum(<i>E56</i>)
41	The composition of motions	2-D Motion Sensor(<i>E53/E54</i>)	2-D Motion Composition and Resolution(<i>E58</i>)
42	Law of mechanical energy conservation	2-D Motion Sensor(<i>E53/E54</i>)	2-D Simple Pendulum(<i>E56</i>)
43	Double slit interference	Relative Illumination Distribution Sensor(<i>S24</i>)	Optics Kit(<i>E20</i>)
44	Grating diffraction	Relative Illumination Distribution Sensor(<i>S24</i>)	Optics Kit(<i>E20</i>)
45	The relationship between light intensity and light source distance	Relative Illumination Distribution Sensor(<i>S24</i>)	Optics Kit(<i>E20</i>)
46	The relationship between light intensity and voltage	Relative Illumination Distribution Sensor(<i>S24</i>)	
47	Light intensity of candle	Relative Illumination Distribution Sensor(<i>S24</i>)	
48	Research on the light transmittance of different materials	Relative Illumination Distribution Sensor(<i>S24</i>)	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!
49	Polarization of light	Relative Illumination Distribution Sensor(<i>S24</i>)	
50	Measurement of basic counting rate	G-M Sensor(<i>S36</i>)	

51	Measurement of counting rate of common radioactive source	G-M Sensor(S36)	
52	Research on the relationship between radioactive intensity and distance	G-M Sensor(S36)	
53	Radiation shielding	G-M Sensor(S36)	
54	Measurement of radioactivity of building materials	G-M Sensor(S36)	
55	The relationship between solar activity and the variation of basic counting rate	G-M Sensor(S36)	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!

- Physics Experiment (Based on General Software) -

No.	Experiment	Sensor required	Lab equipment required
1	Study on uniform rectilinear motion	Displacement Sensor(S06)	Multi-purpose Track Motion System and Accessory(E01)
2	Study on uniformly accelerated rectilinear motion	Displacement Sensor(S06)	Multi-purpose Track Motion System and Accessory(E01)
3	Measurement of average velocity	Photo Gate Sensor(S09) × 2	Multi-purpose Track Motion System and Accessory(E01)
4	The relationship between average velocity and instantaneous velocity	Photo Gate Sensor(S09) × 2	Multi-purpose Track Motion System and Accessory(E01)
5	Measurement of acceleration	Photo Gate Sensor(S09) × 2	Multi-purpose Track Motion System and Accessory(E01)
6	Study on static friction	Force Sensor(S01/S02/S03)	Friction Apparatus(E09)
7	Study on sliding friction	Force Sensor(S01/S02/S03)	Friction Apparatus(E09)
8	The relationship between acceleration and pull	Photo Gate Sensor(S09)	Multi-purpose Track Motion System and Accessory(E01)
9	The relationship between acceleration and mass	Photo Gate Sensor(S09)	Multi-purpose Track Motion System and Accessory(E01)
10	Hooke's Law	Force Sensor(S01/S02/S03)	
11	The relationship between gravity and mass	Force Sensor(S01/S02/S03)	



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12	Study on the fixed and movable pulleys	Force Sensor(<i>S01/S02/S03</i>)	
13	Composition and decomposition of force	Force Sensor(<i>S01/S02/S03</i>) × 2	Force Resolution and Composition Apparatus(<i>E04</i>)
14	Newton's Third Law	Force Sensor(<i>S01/S02/S03</i>) × 2	
15	Interaction of buoyancy	Force Sensor(<i>S01/S02/S03</i>) × 2	
16	Study on free fall motion with displacement pickup	Displacement Sensor(<i>S06</i>)	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!
17	Free fall acceleration measurement by photoelectric sensor	Photo Gate Sensor(<i>S09</i>)	
18	Overweight and weightlessness	Force Sensor(<i>S01/S02/S03</i>)	
19	Theorem of momentum (Variable Force)	Force Sensor(<i>S01/S02</i>), Photo Gate Sensor(<i>S09</i>)	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
20	Theorem of momentum (Constant Force)	Photo Gate Sensor(<i>S09</i>) × 2	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
21	Work and energy	Photo Gate Sensor(<i>S09</i>) × 2	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
22	Law of conservation of momentum	Photo Gate Sensor(<i>S09</i>) × 2	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
23	Observation of kinetic energy in collision	Photo Gate Sensor(<i>S09</i>) × 2	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
24	Law of conservation of mechanical energy (the ramp method)	Photo Gate Sensor(<i>S09</i>) × 2	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
25	Law of conservation of mechanical energy (the pendulum ball method)	Photo Gate Sensor(<i>S09</i>)	Mechanical Energy Apparatus(<i>E03</i>)
26	Vibration image of simple pendulum	Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), Water tank(Conventional)
27	Damped vibration	Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), Water tank(Conventional)
28	Phase of simple harmonic motion	Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), Water tank(Conventional)
29	Superposition of simple harmonic waves	Voltage Sensor(<i>S29/S30/S32</i>) × 3	Student Power Supply(<i>E31</i>), Water tank(Conventional)
30	Vibration image of spring oscillator	Displacement Sensor(<i>S06</i>)	



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31	Study on the relationship between displacement of oscillator and force exerted on spring in simple harmonic motion	Force Sensor(<i>S01/S02/S03</i>), Displacement Sensor(<i>S06</i>)	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!
32	Forced vibration	Displacement Sensor(<i>S06</i>)	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
33	Measurement of period of simple pendulum	Photo Gate Sensor(<i>S09</i>)	
34	The relation between simple pendulum period and pendulum length	Photo Gate Sensor(<i>S09</i>)	
35	Measurement of acceleration of gravity by simple pendulum	Photo Gate Sensor(<i>S09</i>)	
36	Study on centripetal force	Force Sensor(<i>S01/S02</i>), Photo Gate Sensor(<i>S09</i>)	Centripetal Force Apparatus(<i>E02</i>)
37	Relationship between boiling point and pressure	Pressure Sensor(<i>S17/S18</i>), Temperature Sensor(<i>S12/S13</i>)	
38	Internal pressure of liquid	Pressure Sensor(<i>S17/S18</i>)	
39	Study the relation between fluid pressure and fluid rate	Relative Pressure Sensor(<i>S19</i>)	Fluid Pressure Apparatus(<i>E12</i>)
40	Law of Archimedes	Force Sensor(<i>S01/S02/S03</i>)	Archimedes' Law Apparatus(<i>E08</i>)
41	Water temperature curve during heating process	Temperature Sensor(<i>S12/S13</i>)	
42	Liquid evaporation lowers object temperature	Temperature Sensor(<i>S12/S13</i>)	
43	Work done by friction increases object temperature	Temperature Sensor(<i>S12/S13</i>)	Frictional Heat Apparatus(<i>E17</i>)
44	Doing work and internal energy change	Temperature Sensor(<i>S12/S13</i>)/ Fast-response temperature sensor(<i>S14</i>)	Work by Compressed Gas Apparatus(<i>E16</i>)
45	Pyrometric effect of the infrared ray	Temperature Sensor(<i>S12/S13</i>)	
46	Research on the thermal radiation of different materials	Temperature Sensor(<i>S12/S13</i>) × 3	Heat Radiation Absorption Apparatus(<i>E18</i>)
47	Study on heat radiation	Micro current sensor(<i>S28</i>)	Thermal Radiation Apparatus(<i>E18</i>)



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48	Heat conduction	Temperature Sensor(S12/S13) × 3	
49	Cooling law of water	Temperature Sensor(S12/S13) × 2	
50	Expansion and contraction	Force Sensor(S01/S02/S03)	Expansion and Contraction Apparatus(E15)
51	Temperature variation law in solid melting	Temperature Sensor(S12/S13)	
52	Boyle's Law	Pressure Sensor(S17/S18)	
53	Charles's Law	Pressure Sensor(S17/S18), Temperature Sensor(S12/S13)	Charles' Law Apparatus(E14)
54	Vibration image of sound waves	Sound Sensor(S20)	Audio Signal Generator(E19), tuning fork (Conventional)
55	Noise waveform	Sound Sensor(S20)	
56	Relationship between frequency and pitch	Sound Sensor(S20)	Audio Signal Generator(E19), tuning fork (Conventional)
57	Relationship between amplitude and loudness	Sound Sensor(S20)	Audio Signal Generator(E19), tuning fork (Conventional)
58	Interference of sound waves	Sound Sensor(S20)	Audio Signal Generator(E19), tuning fork (Conventional)
59	Synthesis of sound waves	Sound Sensor(S20)	Audio Signal Generator(E19), tuning fork (Conventional)
60	Sound resonance	Sound Sensor(S20)	Audio Signal Generator(E19), tuning fork (Conventional)
61	Law of current in series circuit	Current Sensor(S25/S26/S27)	Student Power Supply(E31)
62	Law of current in parallel circuit	Current Sensor(S25/S26/S27)	Student Power Supply(E31)
63	Law of voltage in series circuit	Voltage Sensor(S29/S30/S32)	Student Power Supply(E31)
64	Ohm's Law	Current Sensor(S25/S26/S27), Voltage Sensor(S29/S30/S32)	Student Power Supply(E31)
65	Volt-ampere characteristics of conductor	Current Sensor(S25/S26/S27), Voltage Sensor(S29/S30/S32)	Student Power Supply(E31), Resistance Box
66	Measurement of metal wire resistivity by voltammetry	Current Sensor(S25/S26/S27), Voltage Sensor(S29/S30/S32)	Student Power Supply(E31), Resistance Law Apparatus(E30)
67	Relationship between current thermal effect and resistance	Temperature Sensor(S12/S13) × 3	Student Power Supply(E31), Resistance Law Apparatus(E30)

68	Measurement of the electromotive force and internal resistance of battery by voltammetry	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 05
69	Measurement of electromotive force of battery with compensation method	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 06
70	Study on output power and power efficiency of the power supply	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), Resistance Box
71	Describe the volt-ampere characteristic curve of miniature bulb	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 19
72	Volt-ampere characteristic curve of small motors	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>)
73	Partial pressure and current limit	Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 07
74	Constant voltage source, constant flow source	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board – 12, EXB Series Circuit Experiment Board(<i>E27</i>) – 13
75	Measurement of resistance by voltammetry	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 08
76	Analysis of complex circuit	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 03
77	Charge-discharge and series-parallel connection of the capacitor	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 16
78	Measurement of ampere's force	Current Sensor(<i>S25/S26/S27</i>), Force Sensor(<i>S01/S02/S03</i>)	Student Power Supply(<i>E31</i>), Ampere Force Apparatus I(<i>E28</i>)
79	Self inductance phenomenon	Current Sensor(<i>S25/S26/S27</i>) × 2,	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 18, Inductance
80	Theory of generator	Voltage Sensor(<i>S01/S02/S03</i>)	
81	Geomagnetic power generation	Micro Current Sensor(<i>S28</i>)	Geomagnetic Field Generator(<i>E26</i>)
82	AC waveform	Voltage Sensor(<i>S01/S02/S03</i>)	Low Frequency Signal Generator(<i>E35</i>)

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83	Rectification and filtration	Voltage Sensor(<i>S29/S30/S32</i>) × 2,	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 01, 02
84	LC oscillation	Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 17, Inductance
85	RC and RL phase shift	Voltage Sensor(<i>S29/S30/S32</i>) × 2,	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 04
86	Diode characteristic curve	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 09
87	Triode characteristic curve	Current Sensor(<i>S25/S26/S27</i>), Voltage Sensor(<i>S29/S30/S32</i>)	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 10
88	Triode amplifying circuit	Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 11
89	Lissajous figure	Voltage Sensor(<i>S29/S30/S32</i>) × 2	Low Frequency Signal Generator(<i>E35</i>) × 2
90	Rectification and filtration	Voltage Sensor(<i>S29/S30/S32</i>) × 3	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) – 20, 21, 22,
91	LC oscillation	Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) - 16
92	RC and RL phase shift	Voltage Sensor(<i>S29/S30/S32</i>) × 2	Student Power Supply(<i>E31</i>), EXB Series Circuit Experiment Board(<i>E27</i>) - 15
93	Glass conduct electricity	Micro Current Sensor(<i>S28</i>)	Electrical Conductivity for Glass Items(<i>E23</i>)
94	Thermoelectric current	Micro Current Sensor(<i>S28</i>)	Thermocurrent Apparatus(<i>E24</i>)
95	Study of electromagnetic induction phenomenon with single-turn coil	Micro Current Sensor(<i>S28</i>)	
96	Lenz's Law	Micro Current Sensor(<i>S28</i>)	
97	Faraday's Law of electromagnetic induction	Voltage Sensor(<i>S29/S30/S32</i>)	
98	Electromagnetic damping	Displacement Sensor(<i>S06</i>)	Multi-purpose Track Motion System and Accessory(<i>E01</i>)
99	Induced current at the change of weak magnetic flux	Micro Current Sensor(<i>S28</i>)	High-sensitivity Coil(<i>E22</i>)

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100	Research on geomagnetic field with magnetic induction sensor	Magnetic Induction Sensor(<i>S33/S34</i>)	
101	Measurement of rotate speed with magnetic sensor	Magnetic Induction Sensor(<i>S33/S34</i>)	
102	Research on the magnetic intensity of magnet	Magnetic Induction Sensor(<i>S33/S34</i>)	
103	Magnetic induction measurement of the power solenoid	Magnetic Induction Sensor(<i>S33/S34</i>)	Student Power Supply(<i>E31</i>), Solenoid (Conventional)
104	Study of the uniform magnetic field	Magnetic Induction Sensor(<i>S33/S34</i>)	Student Power Supply(<i>E31</i>), Solenoid(<i>E21</i>)
105	Relationship between the magnetic induction and the current of the power solenoid	Current Sensor, Magnetic Induction Sensor	Student Power Supply(<i>E31</i>), Solenoid(<i>E21</i>)

- Chemical Experiments (Based on Special Software) -

No.	Experiment	Sensor required	Lab equipment required
1	Primary cell	Multi-range Current Sensor(<i>S27</i>)	Primary Cell (Conventional)
2	pH value measurement	pH Sensor(<i>S37</i>)	
3	Conductivity measurement	Conductivity Sensor(<i>S38</i>)	
4	Heat of neutralization	Temperature Sensor(<i>S12/S13</i>)	
5	Conductivity titration	Conductivity Sensor(<i>S38</i>)	Neutralization Titration Apparatus(<i>E44</i>)
6	Chemical reaction rate	Relative Pressure Sensor(<i>S19</i>) × 3	
7	Acid-Base neutralization titration	pH Sensor(<i>S37</i>)	
8	Acid-Base neutralization titration (Extension)	pH Sensor(<i>S37</i>)	Neutralization Titration Apparatus(<i>E44</i>)
9	Determination of strong electrolyte solution concentration	Conductivity Sensor(<i>S38</i>)	
10	Determination of colored solution concentration	Chroma Sensor(<i>S39</i>)	
11	Determination of ionization equilibrium constant	pH Sensor(<i>S37</i>)	

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- Chemical Experiment (Based on General Software)-

No.	Experiment	Sensor required	Lab equipment required
1	pH value measurement	pH Sensor(S37)	
2	Comparison among acids, bases and salts	pH Sensor(S37)	
3	Comparison between strong and weak electrolytes	pH Sensor(S37)	
4	Hydrolyzation of salts	pH Sensor(S37)	
5	Determination of acetic acid ionization equilibrium constant	pH Sensor(S37)	
6	Effect of temperature on the acetic acid ionization equilibrium	pH Sensor(S37), Temperature Sensor(S17/ S18)	
7	Acid-Base neutralization titration	pH Sensor(S37)	Neutralization Titration Apparatus(E44)
8	Titration HCL by NaOH standard solution	pH Sensor(S37)	Neutralization Titration Apparatus(E44)
9	Titration NH ₃ •H ₂ O by HCL solution and titration CH ₃ COOH by NaOH standard solution	pH Sensor(S37)	Neutralization Titration Apparatus(E44)
10	Titration mixed carbonate by HCL solution	pH Sensor(S37)	Neutralization Titration Apparatus(E44)
11	Conductivity measurement	Conductivity Sensor(S38)	
12	Comparison of electrolyte and non-electrolyte	Conductivity Sensor(S38)	
13	Comparison between strong and weak electrolytes	Conductivity Sensor(S38)	
14	Comparison between soft water and hard water	Conductivity Sensor(S38)	
15	Effect of Concentration on the electrolyte. Solution ionization	Conductivity Sensor(S38)	
16	Determination of NaCl Solution Concentration	Conductivity Sensor(S38)	
17	Study on the nature of ionic reaction	Conductivity Sensor(S38)	

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18	Determination of Chemical reaction rate (conductivity measurement method)	Conductivity Sensor(S38)	
19	Effect of concentration on chemical reaction rate	Conductivity Sensor(S38)	
20	Effect of temperature on chemical reaction rate	Conductivity Sensor(S38)	
21	Variation in the Ion Concentration during the Dilution Process of Glacial Acetic Acid	Conductivity Sensor(S38)	Dilution Vessel(E47)
22	Conductivity Titration	Conductivity Sensor(S38)	Neutralization Titration Apparatus(E44)
23	Titration curve of HCL titrated by NaOH	Conductivity Sensor(S38)	Neutralization Titration Apparatus(E44)
24	Titration curve of NH ₃ •H ₂ O titrated by HCL	Conductivity Sensor(S38)	Neutralization Titration Apparatus(E44)
25	Titration curve of CH ₃ COOH titrated by NaOH	Conductivity Sensor(S38)	Neutralization Titration Apparatus(E44)
26	Heat of Dissolution	Temperature Sensor(S12/S13)	
27	Exothermic reaction (or reaction heat)	Temperature Sensor(S12/S13)	
28	Heat of Neutralization	Temperature Sensor(S12/S13)	
29	Greenhouse Effect of CO ₂	Temperature Sensor(S12/S13) × 2	Far-infrared Heater
30	Comparison of the temperature of alcohol lamp flame	High Temperature Sensor(S15)	
31	Comparisons on the Melting Temperature of Soldering Tin, Tin and Lead	High Temperature Sensor(S15)	
32	Catalysis and cracking of paraffin	High Temperature Sensor(S15)	
33	The burning of waste plastics (or the experiment of waste plastics recycling and disposal)	High Temperature Sensor(S15)	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!

34	Primary cell	Multi-range Current Sensor(S27), Multi-range Voltage Sensor(S32)	Primary Cell (Conventional)
35	The inquiry of primary cell experimental	Multi-range Current Sensor(S27), Multi-range Voltage Sensor(S32)	Primary Cell (Conventional)
36	Metal elements activity order	Multi-range Current Sensor(S27), Multi-range Voltage Sensor(S32)	Primary Cell (Conventional)
37	Fruit battery	Multi-range Current Sensor(S27), Multi-range Voltage Sensor(S32)	
38	Electrolytic cell	Multi-range Current Sensor(S27), Multi-range Voltage Sensor(S32)	Student Power Supply(E31)
39	The inquiry of electrolytic cell	Multi-range Current Sensor(S27), Multi-range Voltage Sensor(S32)	Student Power Supply(E31)
40	Study on the Conductivity of Melted KNO_3	Multi-range Current Sensor(S27)	Student Power Supply(E31)
41	Determination of chemical reaction rate (relative pressure measurement method)	Relative Pressure Sensor(S19) $\times 3$	
42	The factors influencing the chemical reaction rate	Relative Pressure Sensor(S19) $\times 3$	
43	Measurement of the KMnO_4 Concentration	Chroma Sensor(S39)	
44	Effect of concentration on chemical reaction rate (turbidity measurement method)	Turbidity Sensor(S40) $\times 3$	
45	Effect of temperature on chemical reaction rate	Turbidity Sensor(S40) $\times 3$	
46	Simulation of Acid Rain Formation	SO_2 Sensor(S42), pH Sensor(S37)	

- Biological Experiments (Based on Special Software) -

No.	Experiment	Sensor required	Lab equipment required
1	Measurement of Heart Rate	Heart Rate Sensor(S52)	
2	Greenhouse Effect	Temperature Sensor(S12/S1) $\times 2$	

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3	Nature of Semi-permeable Membrane	Conductivity Sensor(S38)	
4	Frequency of Respiration	Respiration Sensor(S51)	
5	Respiration of fish	O ₂ Sensor (Liquid)(S48)	Sealing Apparatus(E45)
6	Determination of Protein Content in Solution	Chroma Sensor(S39)	
7	Transpiration	Relative Humidity Sensor(S47)	Sealing Apparatus(E45)
8	Conductivity determination of drinking waters	Conductivity Sensor(S38)	
9	The frequency of respiration	Micro Current Sensor(S28)	
10	Respiration of Plant	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46)	Sealing Apparatus(E45)
11	The pH value measurement of domestic water	pH Sensor(S37)	
12	Effect of Temperature on Respiration of Animal	Temperature Sensor(S12/S13), O ₂ sensor(S44), CO ₂ sensor(S45/S46)	Sealing Apparatus(E45)
13	Characteristics of enzyme	Relative Pressure Sensor(S19) × 3	
14	Exploration on the buffer capacity of living organism's body fluid	pH Sensor(S37)	
15	Relation between the length of breath holding time (BHT) and the oxygen content of exhaled gas	O ₂ sensor(S44)	Note : Due to keeping innovation, the specification and Machine pictures or color are subject to alteration without notice!

- Biological Experiments (Based on General Software) -

No.	Experiment	Sensor required	Lab equipment required
1	Domestic water determination	pH Sensor(S37)	
2	Nature of Semi-permeable Membrane	Conductivity Sensor(S38)	
3	Simulating the hemodialysis	Conductivity Sensor(S38)	
4	Exploration on the relation between cell size and substance transportation	Conductivity Sensor(S38)	

5	Acidity or basicity determination of soils	pH Sensor(S37)	
6	pH value measurement of saliva	pH Sensor(S37)	
7	Exploration on the buffer capacity of living organism's body fluid	pH Sensor(S37)	
8	Difference between exhaled gas and outside air	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46), Temperature Sensor(S12/S13), Relative Humidity Sensor(S47)	
9	Effect of aerobic exercise on exhaled gas composition	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46)	
10	Effect of the length of breath holding time (BHT) on the oxygen content of exhaled gas	O ₂ Sensor(S44)	
11	Seed germination	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46), Temperature Sensor(S12/S13)	
12	Photosynthesis of the terrestrial plant	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46)	Sealing Apparatus(E45)
13	Respiration of the terrestrial plant	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46)	Sealing Apparatus(E45)
14	Terrestrial plant respiration	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46)	Sealing Apparatus(E45)
15	Effect of Temperature Change on the Respiration of Plant	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46), Temperature Sensor(S12/S13)	Sealing Apparatus(E45)
16	Respiration of Animal	O ₂ Sensor(S44), CO ₂ Sensor	Sealing Apparatus(E45)
17	Effect of Temperature on Respiration of Animal	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46), Temperature Sensor(S12/S13)	Sealing Apparatus(E45)
18	Respiration of Yeast	O ₂ Sensor(S44), CO ₂ Sensor(S45/S46)	
19	The aerobic respiration and anaerobic respiration of yeast	O ₂ Sensor (Liquid)(S48), CO ₂ Sensor (Liquid)(S49)	
20	Factors affecting yeast respiration	O ₂ Sensor (Liquid)(S48), CO ₂ Sensor (Liquid)(S49)	

Note :

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21	Photosynthesis of aquatic plant	O ₂ Sensor (Liquid)(S48)	Sealing Apparatus(E45)
22	Factors affecting aquatic plant photosynthesis	O ₂ Sensor (Liquid)(S48)	Sealing Apparatus(E45)
23	Aquatic animal's respiration	O ₂ Sensor (Liquid)(S48)	Sealing Apparatus(E45)
24	Effect of temperature on aquatic animal respiration	O ₂ Sensor (Liquid)(S48), Temperature Sensor(S12/S13)	Sealing Apparatus(E45)
25	Verification of Osmosis	Relative Pressure Sensor(S19)	
26	Features of enzyme	Relative Pressure Sensor(S19) × 3	
27	Factors affecting the enzyme's catalysis	Relative Pressure Sensor(S19) × 3	
28	Features of enzyme (Oxygen measurement difference method)	O ₂ Sensor(S44)	Sealing Apparatus(E45)
29	Factors affecting the enzyme's catalysis (negative pressure method)	O ₂ Sensor(S44)	Sealing Apparatus(E45)
30	Transpiration (negative pressure method)	Relative Pressure Sensor(S19)	Pocket Sealing Apparatus(E46)
31	Factors Affecting Transpiration	Relative Pressure Sensor(S19), Temperature Sensor(S12/S13)	Pocket Sealing Apparatus(E46)
32	Transpiration (humidity method)	Relative Humidity Sensor(S47)	Sealing Apparatus(E45)
33	Transpiration (temperature method)	Temperature Sensor(S12/S13)	Sealing Apparatus(E45)
34	Effect of different vegetation on ambient environment	Temperature Sensor(S12/S13)	
35	Effect of exercise on body temperature	Temperature Sensor(S12/S13), Fast Response Temperature Sensor(S14)	
36	Temperature adjustment by human body's sweating and losing heat	Temperature Sensor(S12/S13), Fast Response Temperature Sensor(S14)	
37	Electrocardiogram	EKG Sensor(S50)	
38	Measurement of heart rate	Heart Rate Sensor(S52)	
39	Effect of exercises on heart rate	Heart Rate Sensor(S52)	

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40	Conduction of Nerve Impulse	Micro Current Sensor(<i>S28</i>)	
41	Measurement of respiratory rate	Respiration Sensor(<i>S51</i>)	
42	Comparison between deep breath and smooth breath	Respiration Sensor(<i>S51</i>)	
43	Effect of exercises on respiration rate	Respiration Sensor(<i>S51</i>)	
44	Determination of Protein Content in Solution	Chroma Sensor(<i>S39</i>)	
45	Determination of Vitamin C Content in Solution	Chroma Sensor(<i>S39</i>)	
46	The REDOX potential change during the yeast growth process	ORP Sensor(<i>S41</i>)	Sealing Apparatus(<i>E45</i>)
47	Effect of the ORP change in small ecosystem on the growth of aquatic plants	ORP Sensor(<i>S41</i>)	Sealing Apparatus(<i>E45</i>)
48	Comparison of the disinfection effect between different disinfectant	ORP Sensor(<i>S41</i>)	Sealing Apparatus(<i>E45</i>)



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