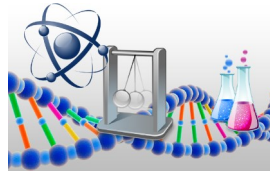


SSK301

Student's All Science Lab Kits



Mobile Science Laboratory

The SSK 301 Student's lab work kits for the study of natural sciences (Physics, Chemistry, Biology) are **part of the PCB 301 Mobile Science Laboratory**, dedicated for student activities only, where the PCB 301 is dedicated to the teacher activities. The set of SSK301 includes the following:

- 1.The Student Mobile Trolley base.
- 2.The Set of Experimental Laboratory Equipment for students.

The Student Mobile Trolley is designed for easy access of kits by students , in includes a variable power supply fro 3 to 12 volts DC (220VAC input), 4 wheels and 5 sets of sliders for the kit containers. It has a handle on the top for easy rolling and the front wheels have breaks.

The SSK301 lab equipment is designed for students to conduct experiments, laboratory work in Physics, Chemistry and Biology. The set includes laboratory **equipment, instruments, digital instrumentation, interactive learning resources, multimedia and test materials**, interrelated and complementary to each other for the experiments and observations on the science didactic program.

The student and teacher PCB 100 application platform operates as **ONE uniform interconnected platform** and is a part of **ONE methodological structure** of teaching sciences. The complex is stored in separate trolley which accompanies the MSL cart. The system is designed to ensure the safety of students when working with it. Up to 4 student group can work with a single SSK301. The PCB100 application interconnects the Teacher with the Students in a uniform platform. Theory presentations with interfaces

to a Student Response system or Interactive board, Teacher Demonstrations, Lab Simulations, Virtual measurement simulations, Data acquisition applications, Multimedia presentations, Student experiments, Student activities and student quizzes and tests jointly provide the most modern platform in Science teaching.

The PCB100 application also includes various utilities as **Glossary, Instructions** for different devices in the mobile cart and student trolley, the **Inventory** of the kits , and the set of didactic **Software Applications** which are used during the teaching process.

All experiments are conducted either with the conventional measuring devices or with the use of data acquisition system which includes a variety of sensors and state of the art data loggers. There is a variety of sensors provided with the separate kits in order for the students to enter into the Digital laboratory Technology. Force, pressure, temperature, electromagnetic field, voltage, acceleration, current, light, sound, photo gate are some of the sensors provided to the students to conduct their experiments.

Every subsection of the **PCB100** application covers a variety of subjects accompanied with relevant experiments, some to be conducted by the Teacher (**demonstrations**) and others by the Student (**activities**) as well as theoretical presentations for each concerned subject.

However, only the Student activities can be done with the SSK301 kits' equipment. All the required equipment for the experiments are granted by the SSK301 kits.



ALL SCIENCE MSL KITS *	
BS 4010 Microscope set	1
CS 3010 Chemistry set	1
DLS 301 Digital laboratory set	1
PS 2021 Mechanics	1
PS 2031 Electromagnetism	1
PS 2041 Optics	1

* Note: Quantity of kits per SSK301 student lab trolley

The **Didactic application** also come with **new add-on modules** such as:

- 1. Classroom management system.** A complete classroom/ school management database
- 2. Student response system** which support Android Pad and Smart phone user interface.
- 3. Classroom Performance** Student and class performance , evaluation and Statistics on all quizzes and tests on line (no internet required)
- 4. Teacher add-on content Link Interface.**
- 5. Voice file add-on Annotation utility.**

SSK301

Mobile Science Laboratory

The SSK301 is driven by the PCB100 application which is divided into topics, each topic is divided into sections and each section into subsection. In each subsection you can find the **Presentations**, the related (wherever available) **Multimedia or Videos** and the **Simulations**. Furthermore, there are the **Activities** for the students. Using the PCB100 application you will find:

The **Inventory** which contains all the materials from the specific kits that are used in each lesson or activity.

The **Glossary** that contains an alphabetical keyboard and by pressing each letter you can find word-meanings and terminology.

The **Application** which has two subunits: the **Simulators** (simulations of experiments and phenomena that are carried out with the help of either the teacher or the student), the **Multimedia** (find videos showing a relevant phenomenon in some lessons).

The **Science Support** module which is also divided in two subunits: the **Curriculum** (where there are all the demonstrations and the activities numbered with links that take you to the experiment, and also mentions the section or subsection it belongs to) and the electronic **Manuals** (where there are some manuals for the materials used in the experiments which are considered necessary). The supplied kits and the facilities of the Mobile science cart provide all the equipment and support to implement the pedagogical processes in the subject of Physics, Chemistry and Biology. Analytically, the All Science topics, sections and

subsections supported by the SSK301 kits and the PCB100 application are presented below.

Analytically, the **Physics** topics, sections and subsections supported by the SSK301 kits and the PCB100 application are presented below:

Mechanics

Dynamics - Kinetics

Energy

Work - Energy - Waves - Radiation

Matter & Thermo

Measurements - State of Matter - Thermodynamics

Electromagnetism

Static - Dynamic - Magnetism - Electromagnetism

Optics

Properties of Light - Light phenomena

Analytically, the **Chemistry** topics, sections and subsections supported by the SSK301 kits and the PCB100 application are presented below:

General Chemistry Process

Evaporation - Purification - Distillation - Enthalpy - Electrochemical conductivity - Electrochemistry

Chemical Structure

Atomic Structure - Determining Ion Concentration - Chemical Bonding

Chemical Reactions

Reactivity - Decomposition - Acid and Bases - Salts - Principles of Stoichiometry - Stoichiometry in Chemical Equations - Oxidation and Reduction - Redox Reactions

Organic chemistry

Introduction to Organic Chemistry - Hydrocarbons - Organic Compounds.

Analytically the **Biology** topics, sections and subsections supported by the SSK301 kits and the PCB100 application are presented below:

Genetic-DNA-Microscope

Microscopic Observations - Cells - Multicellular organisms - Brain and Nerves - Genetics - Evolution - Human Reproduction - DNA

Plant-Osmosis-Photosynthesis

Plant Life Cycles - Reproduction In Flowering Plants - Plant Growth - Osmosis - Photosynthesis

Food Chain

Starch in Food - Diet - Nutrient Cycles - Food Chains

Animals & Humans

Animals Classification - Human: The Human Body - Human Body systems - Human Respiratory system - Virtual Eye and Virtual Ear - Exercise - Skeletal system.

