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Suncatcher box Secondary School Class level 8-10 (For students aged 14-16)

2x 5 Learning stations for student-centered experiments for 30 students in groups of 3

The **suncatcher box SEKI** consists of the listed devices, basic information about solar energy, solar radiation, photovoltaics, measurement technology, supplemented by technical data, and info about the devices as well as extensive experimentation manuals, test exercises and solutions. On top of this an email consultation with SUNdidactics and NILS-ISFH as well as a further training for teachers after delivery in the laboratory of NILS in the ISFH or at the supplied school is included. For schools outside of Lower Saxony, Germany, the travel expenses for the consultant have to be borne.

The learning group of up to 30 students is divided into 10 groups of 3, with smaller learning group sizes there can also be groups of 2. The groups 1+2 start with SFSEK1, groups 3+4 with SFSEK2, groups 5+6 with SFSEK3, groups 7+8 with SFSEK4 and groups 9+10 with SFSEK5, the experiments take 2 lessons (1,5 hours) per station, subsequently they continue in a rotating fashion. If the learning group executes all learning stations, 5 double lessons are necessary. The learning stations are independent of each other, for lack of time not all 5 learning stations and not all experimental exercises of the stations have to be worked on. **All device files can be found at www.sundidactics.de/Download.**

Conduction of the experiments with the learning stations either outdoors in natural sunlight or inside the classroom with halogen lamps

Learning station	Experimental devices for 1 learning station	Measurement technology and accessories	Main topics of the experiments
Learning station 1 SFSEK1 Solar cell	2 solar modules SUSE CM4MBV 1 storage module SUSE 4.12 1 basic device SUSE 4.0 with halogen lamp 120 W From school: 1x overhead projector	1 dig. multimeter 8 lab wires, 50 cm each 1 switchable 3x desk power socket 1 folding rule	V,I,P of solar cells with different irradiations Efficiency factor, irradiance, series connection, motor as a generator, solar storage, determination of solar cell quality
Learning station 2 SFSEK2 Solar cell	1 solar module SUSE 4.33 6 solar motors SUSE 4.16 1 basic device SUSE 4.0 with halogen lamp 120 W From school: 1x overhead projector	1 Dig. multimeter 12 Lab wires 50 cm each 1 switchable 3x desk power socket	U,I,P of solar cells with different irradiations, series and parallel connection of solar cells and motors
Learning station 3 SFSEK3 Solar cell	1 solar module SUSE 4.3RB 1 basic device SUSE 4.0 with halogen lamp 120 W 2 LED modules SUSE 4.15 1 storage module SUSE 4.12 1 solar motor SUSE 4.16 1 solar radio SUSE 4.36	1 Dig. multimeter 6 Lab wires 50 cm each 1 switchable 3x desk power socket	U,I,P of solar cells with different irradiations, current density j, series connections, experiments with LEDs, solar storage, solar motors, solar radio
Learning station 4 SFSEK4 Solar electric mobility	1 SUSE solar vehicle 4 1 solar module solar filling station SUSE 4.34 1 basic device SUSE 4.0 with halogen lamp 120 W	1 Dig. Multimeter 4 Lab wires 50 cm each 1 switchable 3x desk power socket 1 Stop watch 1 Folding rule	Electric mobility, filling a solar vehicle at the solar module with different voltages, charging and discharging a GoldCap, driving experiment with the solar vehicle
Learning station 5 SFSEK5 Solar modules	2 10W solar modules SUSE 4.52 1 20W solar module SUSE 4.42 1 LED module SUSE 4.15-24 rainbow 1 smartphone charging device SUSE 4.17 with USB cable (USB to micro USB) 1 powerbank battery pack	1 Dig. multimeter 1 switchable 3x desk power socket 4 Lab wires 50 cm each 1 Stop watch 1 Folding rule	Solar module technology with a professional solar module (4.52 with 18 solar cells, 4.42 with 36 solar cells), solar charging of smartphones and powerbank battery packs

In case of interest in solar thermal experiments the learning station 5 can also be switched to learning station 6 with the solar thermal collector ES.

Suncatcher box SEKI = Each learning station SFSEK 1-5 twice: 1599,00 € net plus shipping and taxes