



innovative Solarsysteme für Schule und Ausbildung
innovative solar- systems for school, college, technical education

- Solardidaktik
- Solarzellen
- Solarmodule
- Photovoltaik- Experimentiergeräte
- Photovoltaik- Gerätentwicklung
- Experimentieranleitungen didaktische Konzepte
- Solarberatung
- Solar- Workshops
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- solare Aus- und Weiterbildung
- Solarspielzeuge

- solardidactics
- solar cells
- solar modules
- photovoltaic -experiment - devices
- solar- experiment- manuals
- solar- workshops
- solar consulting
- solar education
- solar training for teachers
- solar toys

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Suncatcher box Secondary School class level 8-10 (For students ages 14-16)

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

The **suncatcher box SEC** consists of the listed devices, basic information about solar energy, solar radiation, photovoltaics, measurement technology, technical data, and info about the devices as well as extensive experimentation manuals, test exercises and solutions. On top of this comes 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. For schools outside of Lower Saxony, Germany, the travel expenses for the consultant have to be borne.

The learning group of 30 students max. 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 SFSEK 2, groups 5+6 with SFSEK 3, groups 7+8 with SFSEK 4 and groups 9+10 with SFSEK 5, the experiments take 2 class hours (1.5 hours) per station, subsequently they continue by rotating. If the learning group executes all learning stations, 5 double classes 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 in the download area.**

Realization of the experiments with the learning stations either outdoors in the natural sunlight or in the classroom with halogen flood lights

Learning station	Experimental devices for 1 learning station	Measurement technology and accessories	Main topics of the experiments
Learning station SEC1	2x SUSE CM4MBV 1x SUSE 4.12 1x Basic device SUSE 4.0 with halogen flood light 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	U,I,P of solar cells with different irradiations Efficiency factor, Irradiance, Series connection, Motor as a generator, Solar storage, quality determ. of solar cells
Learning station SEC2	1x SUSE 4.33 6x Solar motor 4.16 1x Basic device SUSE 4.0 with halogen flood light 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 SEC3	1x SUSE 4.3RB 1x Basic device SUSE 4.0 with halogen flood light 120 W 2x LED module SUSE 4.15 1x Storage module SUSE 4.12 1x Solar motor SUSE 4.16 1x 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 SEC4	1x SUSE solar vehicle 4 1x Solar module solar filling station SUSE 4.34 1x Basic device SUSE 4.0 with halogen flood light 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 SEC5	1x Solar module SUSE 4.51 1x Basic device SUSE 4.0 1x LED module SUSE 4.14-12 rainbow 1x Smartphone charging device SUSE 4.17 with USB cable (USB to mini USB)	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 (with 18 solar cells), solar charging of smartphones

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.

Device configuration: 10x Basic device SUSE 4.0, 4x Solar module SUSE CM4MBV, 2x Energy storage module SUSE 4.12, 2x Solar module SUSE 4.33, 14x Solar motor SUSE 4.16, 2x Solar module SUSE 4.3RB, 4x LED module SUSE 4.15, 2x Solar vehicle 4, 2x Solar module SUSE 4.34, 2x Solar radio SUSE 4.36, 2x Solar module SUSE 4.51, 2x Smartphone charging device SUSE 4.17, 2x LED module SUSE 4.15-12-rainbow, 10 digital multimeters, 10 switchable 3x desk power sockets, 68 lab wires 50 cm (34x red, 34x black), 4 Stop watches, 6 Folding rules 2m, 3 Original solar cells, Extensive technical and experimental manuals on DVD. **Distribution and invoice by SUNdidactics**, delivery 3 weeks after placement of order.