PRIMARY SCIENCE KIT 009KIT

USER'S GUIDE

CENTRE FOR MICROCOMPUTER APPLICATIONS

https://www.cma-science.nl

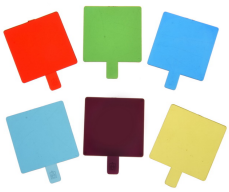
SHORT DESCRIPTION

The CMA Primary Science Kit (Art. Nr 009kit) supports CMA technology enhanced '*Primary Science*' pack and offers additional materials, which can be used with activities described in the pack. In these activities, students use CMA interfaces for example WiLab or €Sense and investigate phenomena around light, sound, heat and temperature.

ITEMS OF PRIMARY SCIENCE KIT

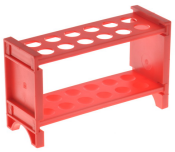
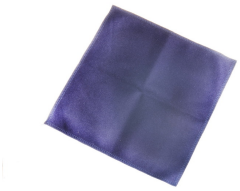
All items included in the CMA Primary Science Kit are listed below. The materials are divided into three groups used for experiments with light, temperature and sound.

1. EXPLORING LIGHT				
No	**Item**	**Photo**	**Qty**	**Description**
L1	Horizontal Holder		1	WiLab or €Sense can be placed horizontally in this holder. The €Sense's light sensor is positioned in line with the centre of the slide holder. Used in many 'Exploring light' Activities.
L2	Vertical Holder		1	€Sense can be placed vertically in this holder so its light sensor points straight down. Use a pencil or the plastic tube (S4) provided in the kit and place it in the small holder to fix the distance between €Sense and a surface. Used in: I. How bright, Activity 4; IV. Reflected light, Activity 2, Activity 3; V. To see and to be seen, Activity 4.
L3	Flashlight with Holder		1	LED light source. Used in many 'Exploring light' Activities.
L4	Test Materials		1 set	Set of exemplary test materials which includes: mirror, aluminium foil, transparent foil, wood, shiny fabric (blue), transparent fabric (yellow), dull fabric (beige). Dimensions: 10 cm x 10 cm.

				Used in: III. Light and matter, Activity 2; IV. Reflected light, Activity 2; Mirror used in IV. Reflected light, Activity 1.
L5	Holder		1	Holder for Test Materials (L4) and Light Filters (L6). Clamp a piece of test material by using the Clip (L11). Slide the filter to place it in the holder. Dimensions: 12.9 x 10.0 cm Used in: III. Light and matter, Activity 2 and Activity 4.
L6	Light Filters		1 set	Set of coloured transparent filters: red, green, blue, cyan, magenta and yellow. Dimensions: 5 cm x 5 cm Used in: III. Light and matter, Activity 4.
L7	Colour Plastic Squares		1 set	Set of coloured opaque squares: red, green, blue, cyan, white, yellow. Dimensions: 5 cm x 5 cm Used in: IV. Reflected light, Activity 3.
L8	Screen with hole		3	White screen with a hole in its centre. Dimensions: 11 cm x 10 cm Used in: V. To see and to be seen, Activity 1.
L9	Screen		1	White screen. Dimensions: 11 cm x 10 cm Used in: V. To see and to be seen, Activity 1.
L10	Round Table		1	Round table to measure the light intensity around a candle, which should be positioned in the centre of the table. Please notice that candles are not provided in the kit, you can use for example ‘tea lights’. Radius: 20 cm. Used in: V. To see and to be seen, Activity 2.
L11	Clip		2	Clips for clamping test materials (L4) to the holder (L5). Used in: III. Light and matter, Activity 2.

2. Exploring Heat and Temperature

No	Item	Photo	Qty	Description
T1	Container		1	To avoid spilling water we recommend placing beakers with water in this "safety" container. Used in many 'Exploring heat and temperature' Activities.
T2	Styrofoam Beaker		3	200 mL Styrofoam beakers. Used in: I. Hot! Cold! Warm!, Activity 1; II. Graphing temperature, Activity 1. Activity 2, Activity 4; IV. Getting the right temperature. Activity 2, Activity 3.
T3	Measuring Cylinder		1	100 mL plastic measuring cylinder. Used to measure the volume of water, in many 'Exploring heat and temperature' Activities.
T4	Large Beaker		1	250 mL plastic beaker. Used in: V. Cooling down, Activity 2, Activity 3; VII. Melting, Activity 1, Activity 2, Activity 3; IX. A chemical reaction, Activity 1.
T5	Small Beaker		1	100 mL plastic beaker. Used in: V. Cooling down, Activity 1, Activity 2, Activity 3; VI. How to cool faster, Activity 2; VIII. Getting warmer, Activity 3.
T6	Test Tube		3	Plastic test tubes. Dimensions: Ø 1.8 cm, length 9.4 cm). Used in: VII. Getting warmer, Activity 2. These tubes are also used for making sounds in Exploring Sound, III. What is sound?, Activity 2.
T7	Stopper		3	Rubber stoppers for closing test tubes. The stopper has a small hole to place the steel tube of the temperature sensor. Used in: VII. Getting warmer, Activity 2.

T8	Test Tube Rack		1	Plastic rack for holding test tubes safely.
T9	Wedge		1	This rubber wedge can be placed on the temperature sensor steel tube when the sensor is inserted into a testing tube via a rubber stopper. This will keep the temperature sensor in the right position.
T10	Wool		1	A piece of wool material, which can be used to rub the temperature sensor to warm it up. Used in: VII. Getting warmer, Activity 2 and Activity 3.

3. EXPLORING SOUND				
No	**Item**	**Photo**	**Qty**	**Description**
S1	Tuning Fork 440 Hz		1	440 Hz tuning fork with resonance box. The metal fork should be placed in the hole of the resonance box. Firmly push the metal fork into the hole otherwise the sound generated by the tuning fork will be not loud. Used in: I. What is sound? Activity 1, Activity 2, Activity 3 and Activity 4.
S2	Tuning Fork 512 Hz		1	512 Hz tuning fork with resonance box. The metal fork should be placed in the hole of the resonance box. Firmly push the metal fork into a hole otherwise the sound generated by the tuning fork will be not loud. Used in: I. What is sound?, Activity 4.
S3	Rubber Hammer		1	Rubber hammer for striking tuning forks.
S4	Plastic Tube		1	Plastic tube used to make a model of vocal cords and to demonstrate how sound is produced. Dimensions: Ø 0.8 cm, length 15 cm. Used in: II. Making voice sounds, Explanation. Can also be used with €Sense Vertical Holder (L2) to fix the distance to €Sense.
S5	Monochord		1	Monochord with a steel string to investigate sound of a string. Used in: III. What is sound?, Activity 2. Notice that sound generated by plucking the string of the monochrod is not so loud. Place you interface close to the monochord (distance 2-3 cm) to be able to record this sound.

S6	Large Plastic Tube		1	Large plastic tube. Dimensions: Ø 7.6 cm, length 15 cm). Used in: II. Making voice sounds, Question A. IV. How does sound travel and how do we hear it?, Activity 1, Activity 4 (instead of ear trumpet).
S7	Balloon		1	Rubber balloon is used in a drum model created in Unit IV. How does sound travel and how do we hear it?, Activity 1.
S8	Rubber Band		5	Rubber band is used in a drum model created in Unit IV. How does sound travel and how do we hear it?, Activity 1.
S9	Bag with plastic granules		1	Plastic granules are used in a drum model created in Unit IV. How does sound travel and how do we hear it?, Activity 1.
S10	Buzzer		2	Electric buzzes with a battery and on/off switch, which can be used as sound source. Used in: IV. How does sound travel and how do we hear it?, Activity 2 and Activity 4; V. How loud, Activity 2 and Activity 3 (instead of whistling); VI. Stop that noise, Activity 2 and Activity 3.

Note:

This product is to be used for educational purposes only.

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