

Checklist Computers

School:.....

Group (names of all pupils):.....

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Taker of the minutes:.....

Tutor of the group (name, position):.....

Dialogue partner (name, position):.....

Date:.....



Find out if we use our computers in an energy-saving way! Ask the caretaker or another suitable person to answer the questions together with you. You should do the arithmetic problems yourselves.

Answer the questions in sequence! Be considerate when walking through the school! If possible take pictures that are in line with your topic!

1 Computers as electricity consumers

Electricity consumption often isn't easy to determine.

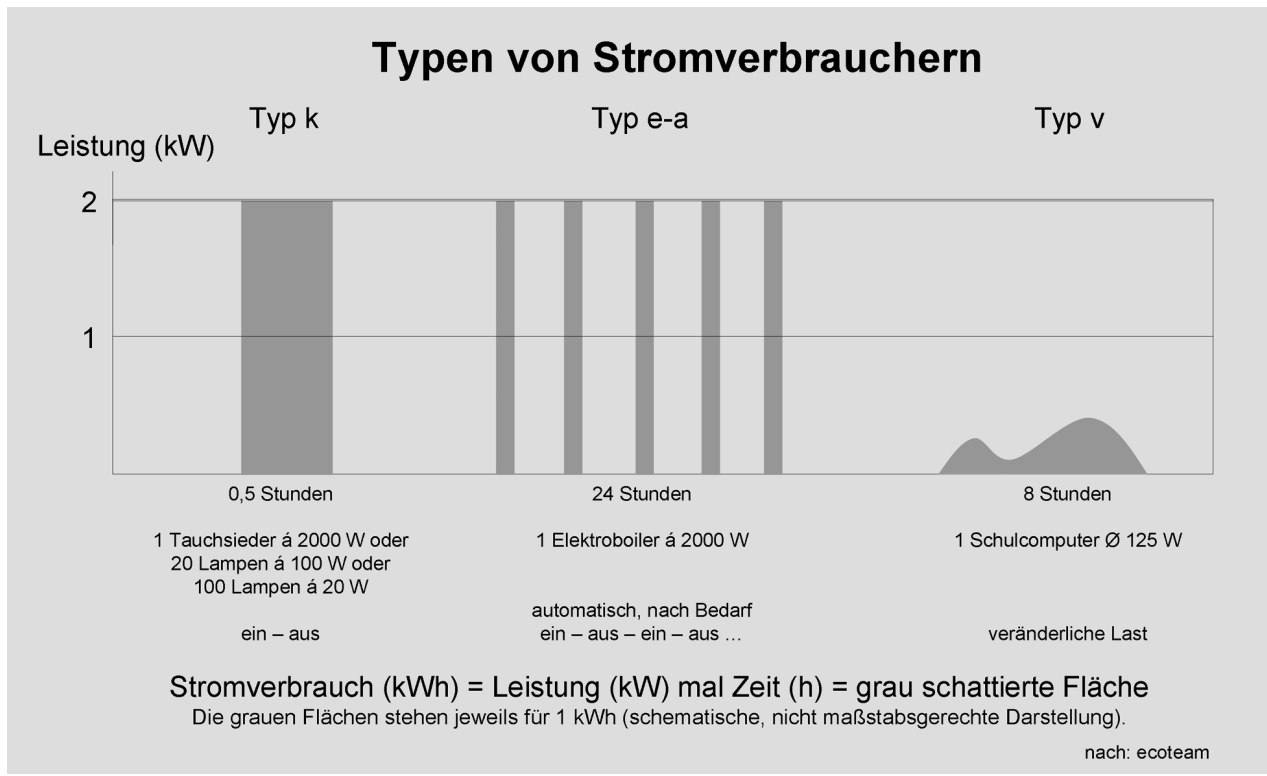
a) With the help of the illustration think about which difficulties could arise when determining electricity consumption.

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b) How comes that the electric power of a computer changes while operating?

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c) Later (question 2) you will measure the electric power of computers and based on this, you will determine the electricity consumption. Why aren't you able to get a particularly exact result?

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d) What could you do to get a more exact electricity consumption?

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2 Examination of the computers

Find out where computers are used in our school and make a guess about the electricity consumption per year. Please proceed as follows:

Go to the computer room. Take an averagely equipped computer workplace. Have a look at the entire computer workplace, that is computer, monitor and, if applicable, speaker, printer and other hardware.

a) Determine the **electric power** for the entire computer with the electrical energy consumption measurement device.

Have your teacher or tutor explain to you exactly how the electrical energy consumption measurement device works. **Attention! Keep in mind that it can be extremely dangerous to touch the line current and work accordingly and responsibly. If you find any damaged cables, switches, plugs or sockets, never ever touch them but tell your tutor.**

Switch off all hardware at the computer workplace and pull the plug/s (this is important, because it could damage the computer if you pull the plug when it is running). Install the measurement device as follows: Socket – electrical energy consumption measurement device – connector – computer and all included hardware. Now switch on again all everything. Read the result at the measurement device (in W) and enter it into the checklist. Switch everything off again, take off the measurement device and the connector. Eventually connect all plugs back to the sockets.

If there several computers are the same in this room, note their number and calculate the whole electrical power.

If there are more computer rooms, check them in the same way.

b) Calculate the **electrical power** of all computers in all rooms.

c) Then make an estimate of the **running time** of the devices. First make a guess on the running time per day and multiply this by the running days each year. For example the computers in room A are used 6 h a day – and on 200 school days per year; this equals 1.200 running hours a year.

d) Multiply the running time (hours per year) by the sum of the electricity power (kW); thus you get the **yearly electricity consumption** (kWh per year) for the computers.

Enter all this information into the record: computer (next page).

The point remarks allows you to enter how the computer workplaces are equipped, or of they are switched on even if nobody works on them.

