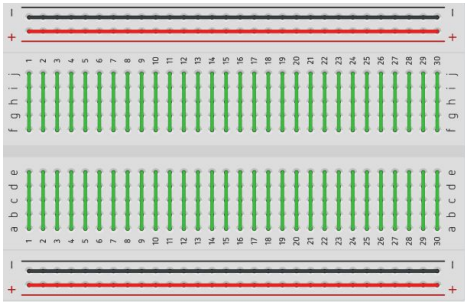
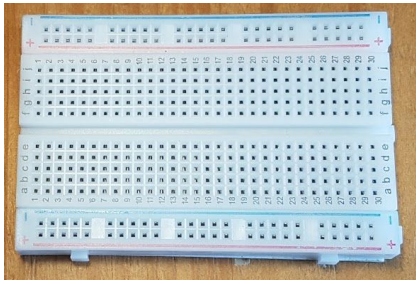
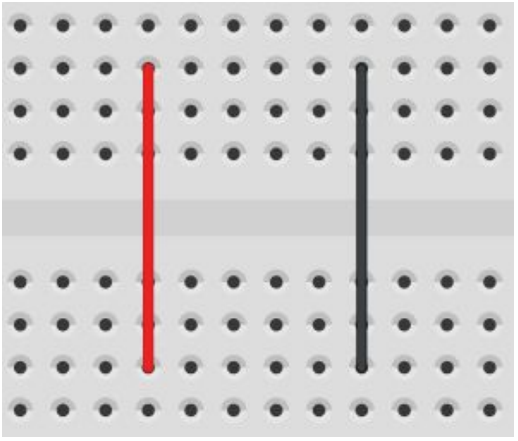
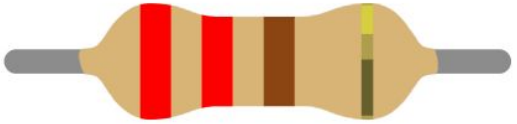
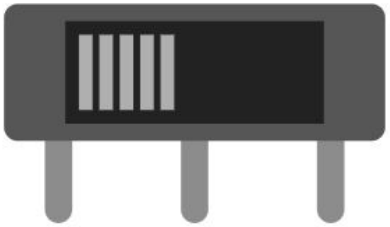
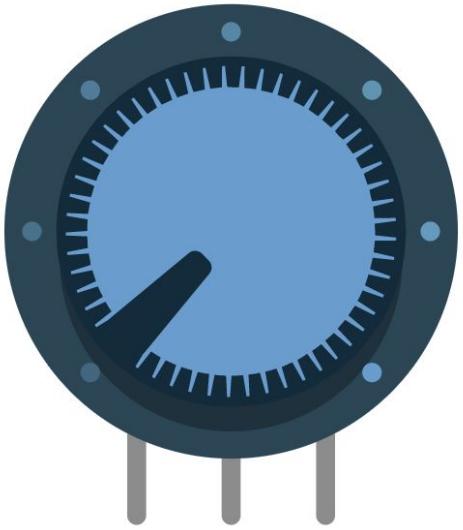
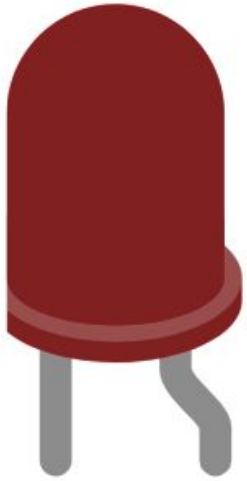
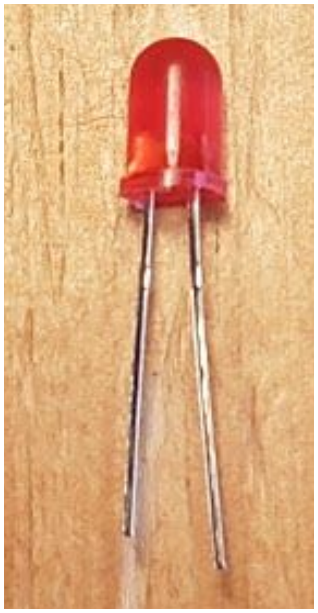
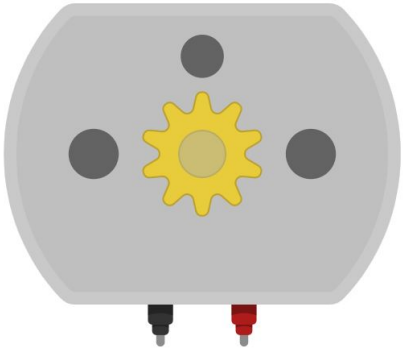
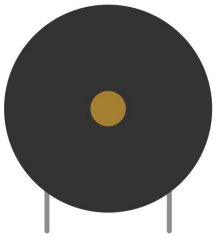
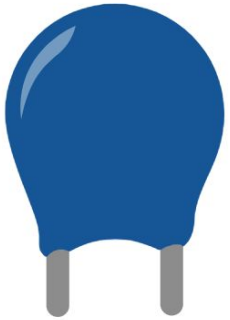
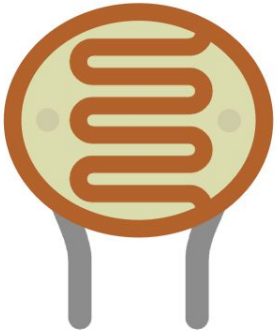
Item	Explanation	Schematic	Photograph
Breadboard	The breadboard is used to orderly place your electronics. In each row (1 t/m 30) points a-e and f-j are in contact with each other. The columns - and + at each side of the breadboard are connected as well. These columns are named the positive rail (+) and the negative rail (-).		
Jumper wires	Jumper wires are used to connect different parts of the breadboard, or to connect electronics to the breadboard. Often red wires are used to show a connection from the positive rail (+) of the breadboard to electronics, while the black wires are used to show a connection from the negative rail (-) of the breadboard to electronics. In reality the cables are available in many colors.		

Battery pack with 2 AA batteries	To power the electronics batteries are used. Often a single battery is not powerful enough, thus a battery pack is used where 2 AA batteries are placed alongside each other. The red terminal of the battery pack can be connected to the positive rail (+) of the breadboard, while the black terminal is can be connected to the negative rail (-). This way all components on the breadboard are powered by the batteries in the battery pack.		
220Ω resistor	The resistor is used to increase the total resistance in an electric circuit. Increasing the resistance leads to a lower current through the circuit, protecting sensitive electronics. Here the 220Ω resistor is shown, with the color scheme: Red, Red, Brown (and Gold, but this color is not always present). Other resistors have other ohmic values and other color schemes. It does not matter which way you connect a resistor.		

Slide switch	The slide switch allows current through two of its three terminals, depending on which direction the switch is switched. If the switch is to the left (as is shown in the picture), the current can pass through the left and middle terminal. If the switch is switched to the right, the current will go through the middle and right terminals. Often the middle terminal will be connected to the positive rail, the other terminals are connected to different electronic components in the circuit. If one of the side terminals is not connected, the switch will function as an on/off switch.		
Push button	The push button has four terminals. The top terminal on the left side is connected to the bottom terminal on the left side, and the right top terminal is connected to the right bottom terminal. However, when the button is pushed, a connection between the left and right side of the button is made. So, to use the button, you connect the top left terminal to a positive rail (+) and the top right to an electronic component in the circuit. While the button is pressed, the electric circuit is closed and current will flow. While the button is not pressed, the electric circuit is open.		

Potentiometer	The potentiometer is a variable resistance. There is a resistive strip with a certain resistance R which connects the left terminal to the right terminal. The resistance between the left terminal and the central terminal can be varied between 0 and R, depending on where the dial is turned. Only connecting the left terminal to the positive rail (+) and the central terminal to an electronic component results in a simple variable resistance in your circuit. Also connecting the right terminal to the negative rail (-) of your circuit will make the potentiometer act to divide the voltage between the middle and left terminal.		

LED	The Light Emitting Diode (LED) is a component which lights up when a current is put through it. It is a diode, which means that it only lets through a current in one direction. Therefore it is important that it is connected in the right direction. The LED has one terminal which is slightly longer. In this image this is the right terminal. This terminal should be connected to the positive rail (+) of the breadboard, while the left terminal should be connected to the negative rail (-). The LED is a quite sensitive electronic component and can quickly break if a too high current is put through it. Therefore, when connecting a LED in a circuit, a resistor is almost always also needed in the circuit.		
Electric motor (DC motor)	The electric motor converts electricity into movement. The shaft (yellow gear) of the electric motor turns if the motor receives a current. If the red terminal is connected to the positive rail, and the black terminal is connected to the negative rail (-) of the circuit, the electric motor will turn clockwise. If the motor is connected the other way around, it will turn in the anti-clockwise direction.		

Active buzzer	The active buzzer is an electronic component which makes a sound whenever current is flowing through it. The buzzer will only work if you connect the positive terminal (left) to the positive rail (+) of your circuit, and the negative terminal (right) to the negative rail (-) of the circuit.		
NTC sensor	The Negative Temperature Coefficient (NTC) is an electronic component which measures the temperature of the material around it. The resistance of an NTC will decrease when the NTC measures a high temperature. A decrease in temperature thus leads to a higher current in your circuit. As the NTC is based on resistance, it does not matter how you connect it in your circuit (just like the resistor).		
LDR sensor	The Light-dependent resistor (LDR) is an electronic component which measures the amount of light on its surface. The resistance of an LDR will decrease when the LDR measures a high amount of light. A decrease in temperature thus leads to a higher current in your circuit. As the LDR is based on resistance, it does not matter how you connect it in your circuit (just like the resistor).		

Proximity sensor	The proximity sensor uses infrared radiation (the same radiation a tv remote uses) to detect the movement of an object. The sensor is powered by connecting the right terminal to the positive rail (+) of your circuit and the left terminal to the negative rail (-). When the sensor detects movement, the middle terminal, and any electric component connected to it, is powered.