

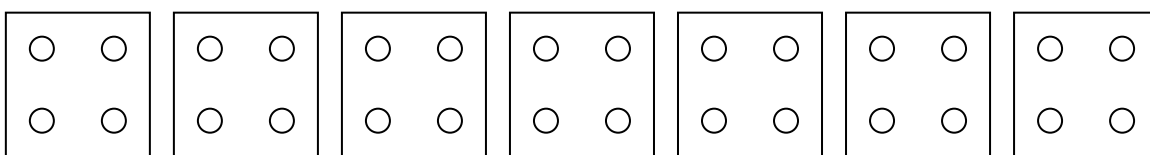
### 3. Worksheet: How is it connected inside the black box?

1. Using the materials on the table construct a simple electric circuit. Write down which elements you choose.
  
2. Draw the symbols of the selected circuit elements.
  
3. Draw a circuit diagram of your designed electric circuit.

#### INVESTIGATION

In front of you there are several black boxes – each of them with four outputs. Try to investigate and find out how these outputs are connected inside the box. They can be mutually interconnected by a lead or a resistor. Determine the type of connection in each case. You can use materials that are on the table in front of you.

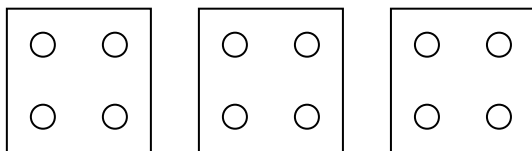
- How can the outputs be interconnected inside the box? Predict the possible connections that are different from each other.



- Think about an experimental procedure in order to find out the black box content. Write it down step by step.



- Draw the electric circuit diagram which you use to reveal the box's content.
- In what case the bulb connected in the circuit with black box shines or does not shine?
- Connect the circuit that you designed to be investigated and carry out the experiment.  
Draw the box's internal connection into the pictures below.



- After finishing experimentation and drawing the corresponding internal structure check your answers with your teacher.  
How many black boxes were revealed correctly? What was the reason of the wrong answer?