

Electric Circuit Maze – Team Competition – Task 1
<ul style="list-style-type: none"> - 5 teams participate, each consisting of 4 students - Each team receives an identical set of cards
<p>Available Circuit Components: Resistors: 1 Ω, 2 Ω, 5 Ω, 10 Ω, light bulb with a resistance of 3 Ω, 12 V power source with negligible internal resistance, conducting wires.</p>
<p>Task: The resistors are connected in a certain arrangement, and this arrangement is then connected in series with the light bulb and the power source. Construct a resistor network so that the current flowing through the light bulb is 1.61 A.</p>
<p>Instructions: -All resistors must be used.</p>

Electric Circuit Maze – Team Competition – Task 2
<ul style="list-style-type: none"> - 5 teams participate, each consisting of 4 students - Each team receives an identical set of cards
<p>Available Circuit Components: Resistors: 1 Ω, 2 Ω, 5 Ω, 10 Ω, light bulb with a resistance of 3 Ω, 12 V power source with negligible internal resistance, conducting wires.</p>
<p>Task: The resistors are connected in a certain arrangement, and this arrangement is then connected in series with the light bulb and the power source. Construct a resistor network so that the current flowing through the light bulb is 2.18 A.</p>
<p>Instructions: -All resistors must be used.</p>

Electric Circuit Maze – Team Competition – Task 3
<ul style="list-style-type: none"> - 5 teams participate, each consisting of 4 students - Each team receives an identical set of cards
<p>Available Circuit Components: Resistors: 1 Ω, 2 Ω, 5 Ω, 10 Ω, light bulb with a resistance of 3 Ω, 12 V power source with negligible internal resistance, conducting wires.</p>
<p>Task: The resistors are connected in a certain arrangement, and this arrangement is then connected in series with the light bulb and the power source. Construct a resistor network so that the current flowing through the light bulb is 1,16 A.</p>
<p>Instructions: -All resistors must be used.</p>

Electric Circuit Maze – Team Competition – Task 4
- 5 teams participate, each consisting of 4 students - Each team receives an identical set of cards
Available Circuit Components: Resistors: 1 Ω , 2 Ω , 5 Ω , 10 Ω , light bulb with a resistance of 3 Ω , 12 V power source with negligible internal resistance, conducting wires.
Task: The resistors are connected in a certain arrangement, and this arrangement is then connected in series with the light bulb and the power source. Construct a resistor network so that the current flowing through the light bulb is 1,28 A.
Instructions: -All resistors must be used.

Electric Circuit Maze – Team Competition – Task 5
- 5 teams participate, each consisting of 4 students - Each team receives an identical set of cards
Available Circuit Components: Resistors: 1 Ω , 2 Ω , 5 Ω , 10 Ω , light bulb with a resistance of 3 Ω , 12 V power source with negligible internal resistance, conducting wires.
Task: The resistors are connected in a certain arrangement, and this arrangement is then connected in series with the light bulb and the power source. Construct a resistor network so that the current flowing through the light bulb is 2,08 A.
Instructions: -All resistors must be used.

Symbols of the Resistor, Light Bulb, Power Source, and Conducting Wire for the Cards:



Resistor 1 Ω



Resistor 2 Ω



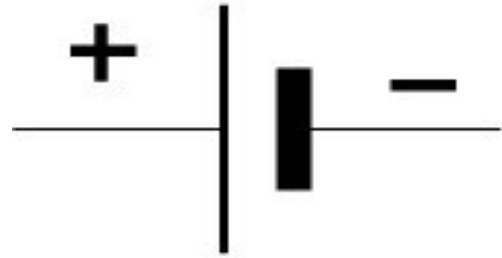
Resistor 5 Ω



Resistor 10 Ω



Light Bulb 3Ω



Power Source 12 V



Wire



Wire



Wire



Wire

Electric Circuit Maze – Find and Fix

- 5 teams participate, each consisting of 4 students
- Each team receives an electrical circuit containing a fault

Task:
Identify the fault and explain it.

Faulty Circuit Models:

