Connected solar cells

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1. If a 12 V module has 36 individual cells, then how many volts is a module with 54 cells?

   - ○ 6 V
   - ◉ 18 V
   - ○ 24 V
   - ○ 36 V

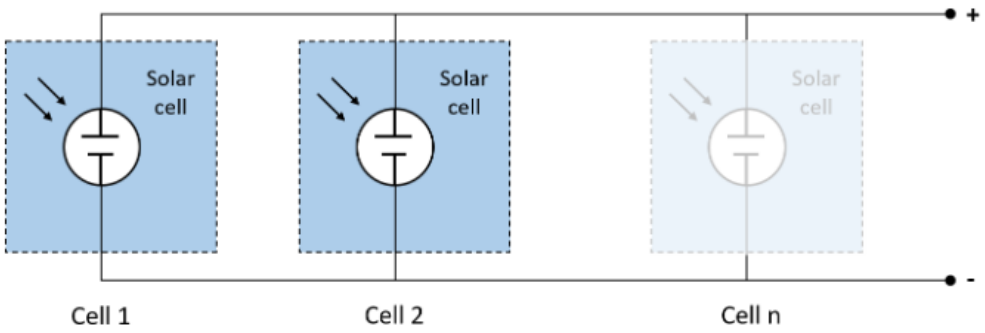
Correct

That is correct

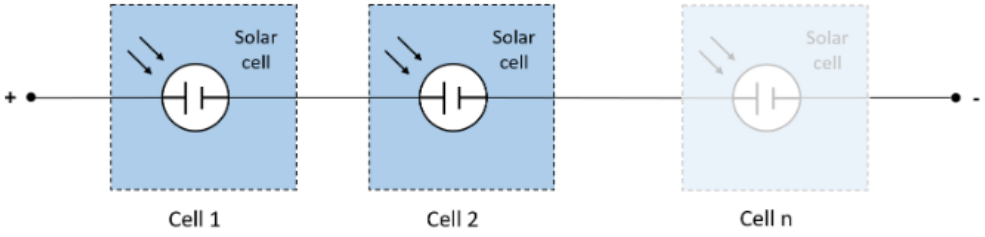
The voltage of a series connection of solar cells is the sum of the voltages from each individual cell.

2. Select the circuit in which the solar cells are connected in parallel.

Circuit A



Circuit B



Correct

That is correct

Components connected in series are connected along a single path, while components

3. **Series connection**

Two solar cells (solar cell A and B) are connected in series. The solar cells have the following parameters.

Solar Cell A

- V_{OC} = 0.5 V
- I_{SC} = 1.2 A

Solar Cell B

- V_{OC} = 0.6 V
- I_{SC} = 1.0 A

What is the open circuit voltage and short circuit current of the series connection of solar cell A and B?

- ○ V_{OC} = 0.6 V and I_{SC} = 1.2 A
- ○ V_{OC} = 0.5 V and I_{SC} = 2.2 A
- ○ V_{OC} = 0.6 V and I_{SC} = 1.0 A
- ◉ V_{OC} = 1.1 V and I_{SC} = 1.0 A

✓ **Correct**

That is correct

For two cells connected in series, the current through the two cells is the same. The total voltage produced is the **sum** of the individual cell voltages. Since the current must be the same, a mismatch in current means that the **total current from the configuration is equal to the lowest current**.

4. What is the role of a bypass diode?

- ○ Reduce current
- ◉ Limit effects of shading
- ○ Increase current
- ○ Prevent reverse current

✓ **Correct**

That is correct

You can read more about bypass diodes here. And maybe revisit the virtual instrument featuring bypass diodes.