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SOLAR BATTERY WITH ONLINE DASHBOARD

Last year, my 8th-grade students and I embarked on an exciting solar battery project, integrating an online dashboard for real-time monitoring.

Our project began with an introduction to the Energy Mix, highlighting the balance between controllable (nuclear, thermal) and non-controllable (wind, solar) energy sources. Focusing on solar energy, the students learned about the photovoltaic effect and its role in generating electricity from sunlight.

We designed a model with solar panels, utilizing an active solar tracker to optimize energy capture. This tracker adjusts the panels' orientation based on sunlight intensity, enhancing efficiency. Energy is stored in batteries.

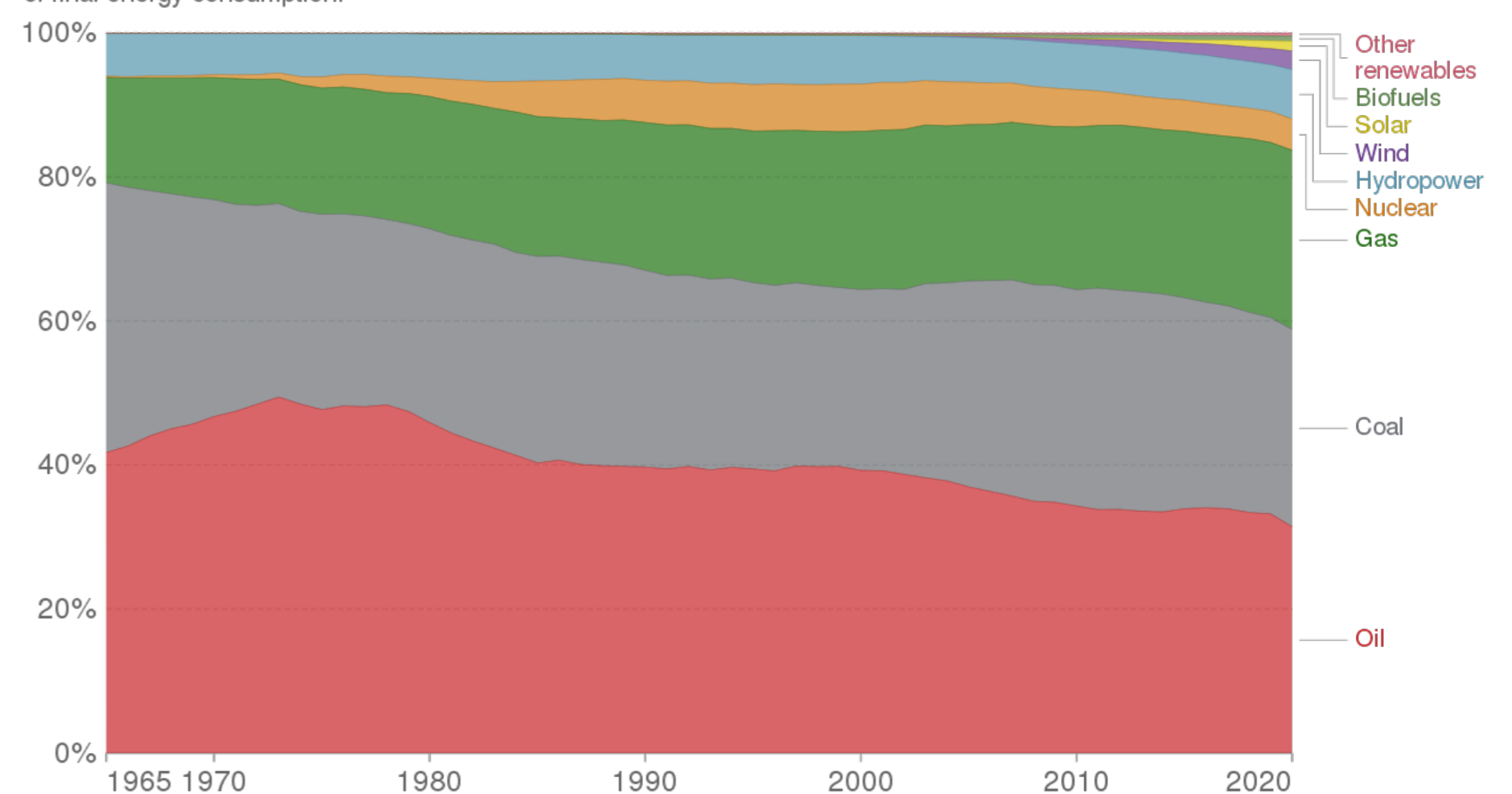
Students monitored the system using voltage and temperature sensors, with data sent to an online dashboard. Despite some design challenges, this hands-on project provided valuable lessons in renewable energy, solar technology, and electronic regulation.

In summary, our students explored:

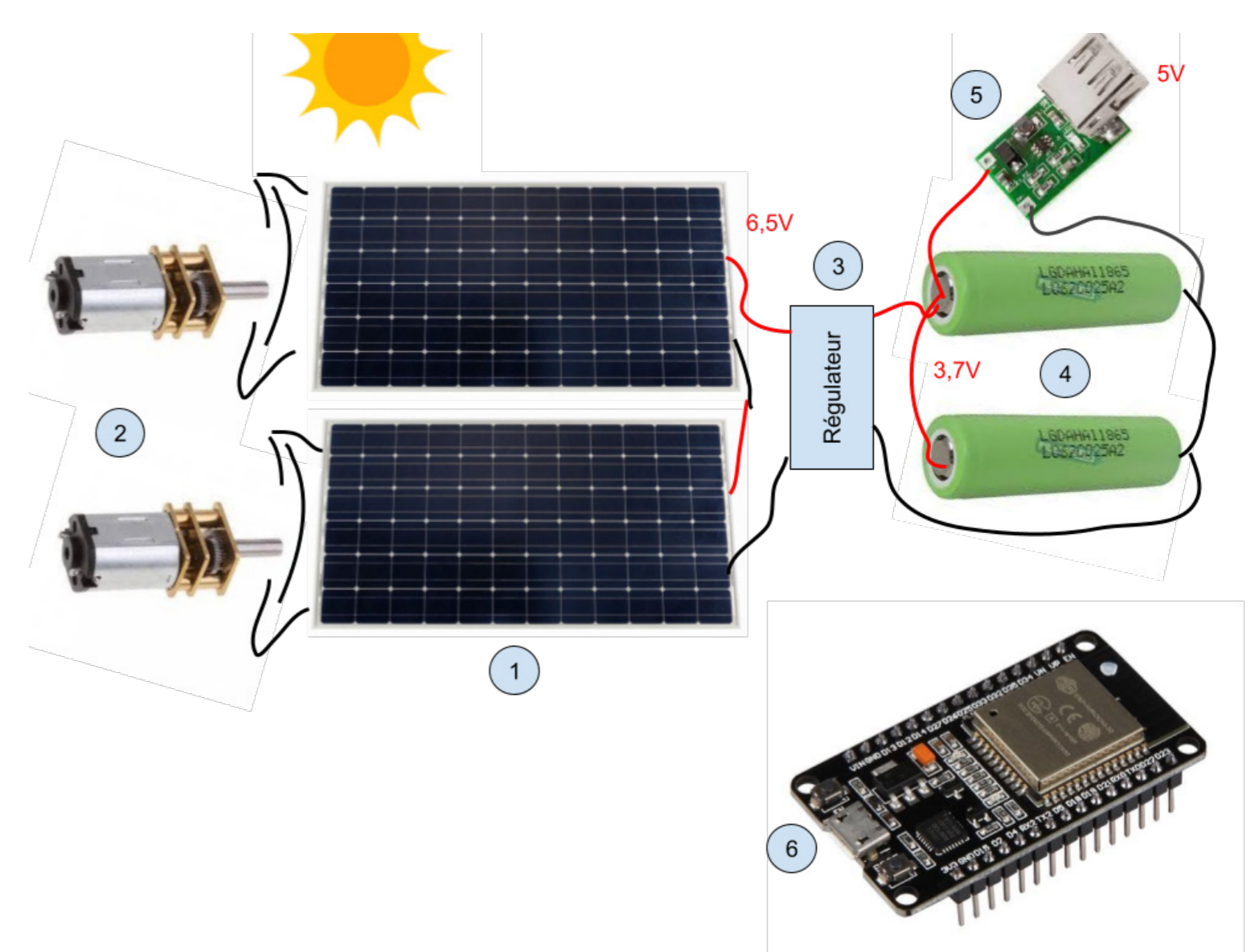
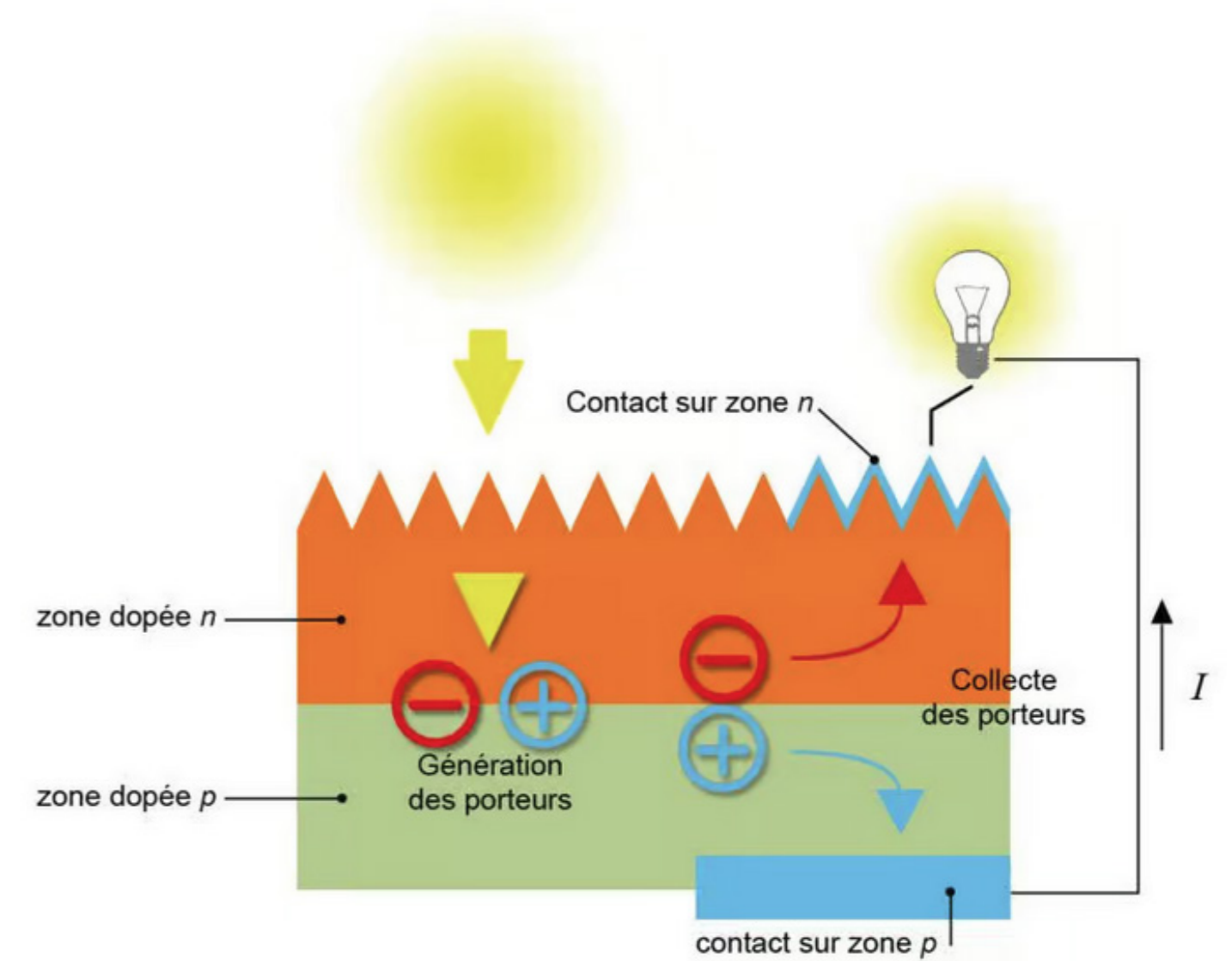
- The Energy Mix concept
- Photovoltaic cell operation
- Solar panel orientation
- Online dashboard creation
- Electrical production regulation
- Energy storage solutions

Energy consumption by source, World

Primary energy consumption is measured in terawatt-hours (TWh). Here an inefficiency factor (the 'substitution' method) has been applied for fossil fuels, meaning the shares by each energy source give a better approximation of final energy consumption.



Source: BP Statistical Review of World Energy
Note: 'Other renewables' includes geothermal, biomass and waste energy.



Empowering students with hands-on renewable energy projects inspires a deeper understanding of sustainability and innovation. Together, we pave the way for a greener future.