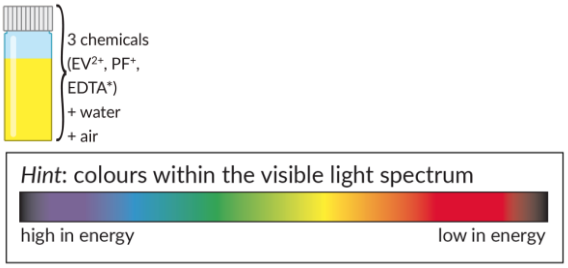
Name: _____ Date: _____

Photo-Blue-Bottle (Sek. II/upper secondary level)

A model experiment for energy conversion and energy storage in a light-driven concentration cell

The Photo-Blue-Bottle-Experiment

B1 Experiment: Using the provided material (hot plate, torch with different light colours, UV torch), explore how to drive a chemical reaction in the vial. This becomes evident when a blue substance generated in the reaction becomes visible within the yellow solution. Jot down your findings in the chart below.



energy form	colour/temperature	observation

B2 Is the statement true or false?

Test your decision either by conducting or by suggesting an appropriate experiment.

- The chemical reaction YELLOW → BLUE requires warmth as a source of energy.
- The reaction BLUE → YELLOW requires light energy.
- The reaction cycle YELLOW → BLUE → YELLOW runs only two times.
- The reaction BLUE → YELLOW will not take place if there is no air above the solution.
- The reaction BLUE → YELLOW requires oxygen.
- The PBB-experiment is a model for the natural cycle of photosynthesis and cellular respiration.
- The blue solution is richer in energy than the yellow one.