Name: _____ Date: _____

Photo-Blue-Bottle (Sek. II/upper secondary level biology and chemistry)
A model experiment for the carbon cycle in animate nature

Analysis A

A1 Using the tutorial 'Photosynthese – ein Fall für Zwei: Teil 1', explain the colour changes of the PBB solution. Then describe the accompanying energy transformation during one reaction cycle (YELLOW → BLUE → YELLOW). (Below you can see a screenshot from the tutorial.)

A2 Give reasons why the PBB-experiment serves as a suitable model experiment for the natural cycle of photosynthesis and cellular respiration.

A3 Assess the extent to which the PBB-model experiment serves as a simulation of the natural cycle of photosynthesis and cellular respiration. Doing so, develop a set of criteria that help you create an overview of its *benefits* and *limits*.

Additional assignment for biology classes
A4 Imagine you are a biology teacher for lower secondary classes and you want to use the PBB-model experiment. Reduce the complex cycles in the tutorial for your purpose (see also the diagrams in B1). Use the following terminology: *low-energy substance, high-energy substance, light, photosynthesis, (cellular) respiration, oxygen, yellow/ blue solution.*