“Light, Camera and Action” Non-Cyclic Light Reactions in Photosynthesis

By Francesca Theriault

In Class (Instructor) | **In Class (Students)**

- Work in Groups
- Whole Class
- Problem Solving
- Discussion
- Practice

Begin Here.

Prepare a space. Use green painter’s tape to delineate the thylakoid membrane.
Prepare 2 boxes with chocolate coins – one placed in the “stroma” space, the other in the “thylakoid lumen” space.
Prepare 16 (legal size) papers with the 16 different “characters” of the non-cyclic light reactions on them and have them ready for students to pick out.
Have tape ready so students can tape the papers to themselves.

Divide the students into 16 Actors and 2 Pigment Groups
Let 16 Actors choose their roles – do not assign roles.

The Actors tape their roles to themselves.
Through peer discussion and peer direction, the Actors arrange themselves according to their roles along the thylakoid membrane, in the “stroma” space or in the “thylakoid lumen” space.

Through peer discussion and peer direction, the students act out the non-cyclic light reactions. Actors transfer electrons and move protons against their concentration gradient, then with their concentration gradient, and pigment groups do a wave action when activated by photons.

Identify errors and discuss with the class.

Have the actors swap with pigment group students

Run 2: the Actors tape their roles to themselves.
Through peer discussion and peer direction, the Actors arrange themselves according to their roles along the thylakoid membrane, in the “stroma” space or in the “thylakoid lumen” space.

Run 2: through peer discussion and peer direction, the students act out the non-cyclic light reactions. Actors transfer electrons and move protons against their concentration gradient, then with their concentration gradient, and pigment groups do a wave action when activated by photons.

Repeat the process until all questions have been addressed.

With student approval, video correct run and post it as a review tool.