

Integrate RIASEC into DOK

Here is an example of how an educator used RIASEC to think about DOK tasks for photosynthesis unit.

DOK - Level 1

Realistic:

- Label the parts of a plant involved in photosynthesis - roots, stem, leaves, chloroplasts.

Investigative:

- List the inputs and outputs of the photosynthesis process.

Artistic:

- Draw and color a picture of a plant.

Social:

- Describe one thing you learned about photosynthesis to a classmate.

Enterprising:

- Name 2 places that use photosynthesis.

Conventional:

- Define photosynthesis.

DOK - Level 2

Realistic:

- Grow a bean plant under a lamp. Observe and record plant growth over 1 week.

Investigative:

- Use a test kit to measure oxygen production from an elodea plant in light vs. dark conditions. Record observations.

Artistic:

- Draw a diagram labeling the parts of a plant leaf involved in photosynthesis.

Social:

- In pairs, take turns explaining the stages of the photosynthesis process to each other.

Enterprising:

- Create a list of 5 key features to highlight in an advertisement for a greenhouse.

Conventional:

- Read 2 short articles about photosynthesis. Outline the key steps in the process.

DOK - Level 3

Realistic:

- Build a small hydroponics system and test how different light sources affect photosynthesis and plant growth.

Investigative:

- Design an experiment testing how soda water, salt water, and tap water affect photosynthesis in elodea plants.

Artistic:

- Create a storyboard for a 5 minute animation explaining the basics of the photosynthesis process.

Social:

- Have groups research different scientists' contributions to discovering photosynthesis. Present findings to class.

Enterprising:

- Develop a marketing brochure promoting a new greenhouse that leverages photosynthesis and artificial lights.

Conventional:

- Find 5 research journal articles about a photosynthesis topic. Summarize and compare their hypotheses.

DOK - Level 4

Realistic:

- Design and build a hydroponics system to optimize conditions for photosynthesis.

Investigative:

- Conduct a multi-week experiment testing how different factors affect the rate of photosynthesis in aquatic plants.

Artistic:

- Write, direct and produce a short documentary film explaining the biological mechanisms and real-world applications of photosynthesis.

Social:

- Research the discovery of photosynthesis by scientists over time. Develop an interactive role play for students simulating a symposium where the scientists share and evaluate each other's theories and findings.

Enterprising:

- Develop a detailed business proposal for an indoor vertical farming startup that leverages photosynthesis and artificial lighting to maximize crop yields.

Conventional:

- Access a research database and compile summaries of 20+ scientific papers related to a specific aspect of photosynthesis. Synthesize by comparing conclusions and then share your own view on the topic.