

3-5 Lesson



Extraction of Life

Grade Level: 5th Grade Only

Topic: Wheat

Estimated Time: 50 minutes

Brief Lesson Description: Students will unravel plant genetics by identifying structures within a plant cell, discovering the location of DNA inside each cell. Using wheat as an example, students will follow a procedure to extract plant DNA. Throughout the guided discussion and experiment, students will explore careers related to plant science and facts about Michigan agriculture.

Next Generation Science Standards:

- **3-LS3-1:** Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
- **4-LS1-1:** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- **5-PS1-1:** Develop a model to describe that matter is made of particles too small to be seen.

National Agricultural Literacy Outcomes:

- **T4.3-5 c:** Identify examples of how the knowledge of inherited traits is applied to farmed plants and animals in order to meet specific objectives (i.e., increased yields, better nutrition, etc.).
- **T4.3-5 d:** Provide examples of science being applied in farming for food, clothing, and shelter products.
- **T5.3-5 b:** Discover that there are many jobs in agriculture.

Specific Learning Outcomes

1. Students will identify components of DNA including phosphates, sugars, nitrogen bases (adenine, thymine, cytosine, and guanine), and double-helix twisting structure.
2. Students will explain the function of the cell wall, cytoplasm, nucleus and chromosomes of a plant cell, recognizing cells are too small to be seen with the naked eye.
3. Students will name one career related to the study of genetics.