

INSPIRE GK12 Lesson Plan



Lesson Title	Extracting DNA!
Length of Lesson	One (50 minute) class period
Created By	Charlotte Buehler
Subject	General Science
Grade Level	7 th grade
State Standards	7 th : Inquiry (1d, h), Life Science (3a)
DOK Level	DOK 3
DOK Application	Assess, Connect, Explain Phenomena in Terms of Concepts
National Standards	5-8: Inquiry (A), Life Science (C)
Graduate Research Element	DNA is an integral component of all living things, including plants and animals. The DNA of <i>Casuarina equisetifolia</i> can be extracted by scientists to learn more about the species and its phylogenetic makeup.

Student Learning Goal:

MS 7th Grade:

Inquiry- (1c) Collect and display data using simple tools and resources to compare information (resources), (1h) Make relationships between evidence and explanations
Life Science- (3d) Compare and contrast reproduction in terms of the passing of genetic information (DNA) from parent to offspring (Reproduction that account for evolutionary adaptability of species).

National Science Education Standards of Content 5-8:

Inquiry (A)—Develop descriptions, explanations, predictions, and models using evidence
Life Science (C)—Reproduction and Heredity

Materials Needed (supplies, hand-outs, resources):

- Computer, projector
- List of laboratory equipment and laboratory procedures (<http://learn.genetics.utah.edu/content/labs/extraction/howto/>)

Lesson Performance Task/Assessment:

In this lesson students will learn how to extract DNA from split peas. The instructor should prepare to have a blender in the laboratory to make a bulk batch of pea smoothie for every classroom period.

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Lesson Relevance to Performance Task and Students:

Student will gain knowledge working in the laboratory setting not only of appropriate laboratory conduct, but of the scientific method. Understanding what DNA is will aid in students understanding of how and why it is important to any living organism.

Anticipatory Set/Capture Interest:

The instructor will begin by showing the class a short video (<http://learn.genetics.utah.edu/content/begin/tour/>) about DNA. This video is meant to be a refresher and supplement to learning about DNA.

Guided Practice:

The lesson does not spend much time guiding students. Rather, student will be in the lab and expected to work diligently within their lab group following the instructions and procedures from the lab sheet.

Independent Practice:

The students will successfully extract DNA from split peas.

Remediation and/or Enrichment:

Remediation- Individual IEP; have the instructor work with the whole group to demonstrate the procedure.

Enrichment – After the students extract the DNA, have them write up what they did and explain how they would do the experiment again (e.g. using strawberries instead of peas or different soaps).

Check(s) for Understanding:

Can the students follow laboratory instructions? Did the students understand the methods for the DNA extraction activity?

Closure:

Question 1: How is human DNA different than pea DNA?

Question 2: How does DNA play a role in heredity?

Possible Alternate Subject Integrations:

Biology

Teacher Notes:

Citation for web site: <http://learn.genetics.utah.edu/>

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