

INSPIRE GK12 Lesson Plan



Lesson Title	Modeling Plant and Animal Cells
Length of Lesson	1-2 50 minute class periods
Created By	Adam Lenz
Subject	Life Science
Grade Level	7 th Grade
State Standards	3a, b
DOK Level	1,2
DOK Application	Identify, Define, Construct, and Compare
National Standards	Life Sciences – learning the difference between plants and animal cells Inquiry – recognize the relationship between explanation and evidence

Graduate Research Element

In my research we are determining whether a specific drainage basin would be suitable to sustain a large reservoir. If the reservoir gets built it would create an entirely new ecosystem in that area and the types of plants and animals that will not only survive, but thrive will depend on intrinsic characteristics of those plants and animals. The most basic unit of any organism is a cell, so therefore having a good understanding of the cells is essentially to understanding the organisms themselves.

Student Learning Goal:

- As part of the Mississippi State Standards for 7th grade science students must learn the basic functions of cells and cell processes, as well as the differences between plant and animal cells.
- National Standards:

Life Sciences – learning the difference between plants and animal cells
Inquiry – recognize the relationship between explanation and evidence

The goal of the lesson is to give the students a hands-on learning activity to see the physical differences between plant and animal cells through a simple and fun modeling activity.

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

Students will need two plastic clear plastic fillable “Christmas ornaments” to create there cell models, assorted candies for organelles and corn syrup to model the cytoplasm within



the cell. The students will also need super glue to secure the two halves of the plastic balls and to permanently close the corn syrup fill hole. Extra lab resources may include a handout with labeled pictures of both plant and animal cells, and possibly a PowerPoint presentation to embed the video into.

Lesson Performance Task/Assessment:

Students will be given a brief description of the lab which will include a display of the finished cell models which I will have pre-constructed and brought into class. Students will be working in groups of 2; they will then be given the necessary clear plastic balls and the candies which will replicate the nucleus and other organelles. Students will then fill each plastic ball with the necessary organelles for that particular cell and secure the two halves of the ball with super glue. Then through a small pre-drilled hole in the top students will fill the ball with either clear or green corn syrup to replicate the cytoplasm. Afterward students will then use super glue to secure the pre-drilled hole so that the corn syrup will not leak. The plant and animal cell models will then be completed after the super glue dries overnight.

Lesson Relevance to Performance Task and Students:

This lesson will give the students a hands-on activity which will result in a personal model of plant and animal cells. They will be able to use them later in the semester for comparison and study purposes before later quizzes and tests. The activity will help them remember the differences rather than memorizing a textbook diagram of the differences.

Anticipatory Set/Capture Interest:

Students will be able to build and create their own cell models. This hands-on project will not only stimulate learning, but also capture interest. A short video about cells can be shown to capture interest at the beginning of the lab.

[\(http://www.studiodaily.com/2006/07/cellular-visions-the-inner-life-of-a-cell/\)](http://www.studiodaily.com/2006/07/cellular-visions-the-inner-life-of-a-cell/)

Guided Practice:

The instructor will give a short talk about the instruction of the lab, and the goals of the lab and display a pre-made cell model. The instructor will then help distribute modeling materials so that students can begin to build their cell models. While the students are working in pairs, the instructor can walk around and help students by giving them ideas, and tips.

Independent Practice:

After a few brief instructions the students will be given materials to build their cell models. They must identify physical properties about each cell and differences between plant and animal cells. Once the students have identified the specific organelles for each cell they can continue to build their plant and animal cell models.



Remediation and/or Enrichment:

Remediation – Students in need of remedial help can have extra guidance and explanation from the instructor.

Enrichment – Further enrichment ideas could include a post-lab class discussion about how a real life cell might differ from the cell models.

Check(s) for Understanding:

Checking progress throughout the lab and actively asking questions during the model construction process will help the instructor know that students truly understand the differences between the cells. Another thorough check of the students’ models and a short class discussion at the end of the class period will also reassure real learning has occurred.

Closure:

- Students will participate in a short post-lab discussion to make sure they truly understand the differences among the cells.

Possible Alternate Subject Integrations:

- Life Sciences - Levels of Organization
- Life Sciences - Photosynthesis

Teacher Notes:

Instructor will need to be careful to make sure students understand the building process throughout the lab to make sure the model is being built appropriately. Also the instructor will need to be aware that materials are being distributed and handled appropriately, and that students are managing their time well so that there is time available to clean-up and have a short class discussion after the models are built.