Daily Lesson Plan Template

Lesson Title: Dragon Genetics Lab, Part 1- Principles of Mendelian Genetics

Overview

Brief description of the lesson topic or activity

Students will learn the basics of reproduction, both sexual and asexual, through watching PBS videos and having class discussions. This will be the opening to the quarter on Life Science, specifically genetics, and will act as a foundation for the classes for the rest of the section.

Process Standards

List the process standards addressed in this lesson (include literacy standards)

Nature of Science

- Make predictions and develop testable questions based on research and prior knowledge
- Plan and carry out investigation- often over a period of several class lessons- as a class, in small groups or independently.
- Keep accurate records in a notebook during investigations.
- Analyze data, using appropriate mathematical manipulation as required, and use it to identify patterns. Make inferences based on these patterns.
- Communicate findings through oral and written reports by using graphs, charts, maps and models.

The Design Process

- Brainstorm potential solutions
- Throughout the entire design process, document the design with drawings (including labels) in a portfolio or notebook so that the process can be replicated.

Writing for Literacy in Science

6-8.WS.1, 6-8.WS.2, 6-8.WS.4-8.WS.10, 6-8.RS.9

Content Standards

List the content standards and indicators covered in this lesson

- 8.3.1: Explain that reproduction is essential for the continuation of every species and is the mechanism by which all organisms transmit genetic information.
- 8.3.2: Compare and contrast the transmission of genetic information in sexual and asexual reproduction.

Essential Questions

List the question(s) that will drive this lesson/investigation

- What is the result of reproduction?
- Why do organisms bother to reproduce? Why don't they just live forever?
- What would eventually happen to a species if every member suddenly lost its ability to reproduce?
- How do types of reproduction differ and why are there two different types?

Objectives

The students will be able to…

- Describe the basics of sexual and asexual reproduction

— Compare and contrast both types of reproduction
— Explain why reproduction is necessary

Co-Teaching Model

Describe how you will implement co-teaching in the lesson

Each teacher can present on one type of reproduction and lead the discussion and activities behind that type.

Procedures

Describe your procedures for each of the following:

Preparation needs (lab or presentation materials, etc.)

Single-Celled Organisms video
(http://www.pbslearningmedia.org/resource/tdc02.sci.life.stru.singlecell/single-celled-organisms/)

Floral Arrangements video
(http://www.pbslearningmedia.org/resource/tdc02.sci.life.stru.floral/floral-arrangements/)

Venn Diagram

White board or large notepad and markers

ENGAGE/Introducing the lesson (Describe how you will engage students in the lesson, assess prior knowledge, or present the question/problem/challenge for the day)

I will begin the lesson by asking and explaining that all living things have the following characteristics in common: they're made of cells, they use energy, they grow and develop, and they respond to their surroundings. Then I will ask the students to name one other characteristic that all organisms have in common. (All organisms reproduce, for example.) Following this brainstorm, focus the rest of the discussion on reproduction, reminding students that one of the most important things an organism can do is reproduce. Ask:

- What is the result of reproduction?
- Why do organisms bother to reproduce? Why don't they just live forever?
- What would eventually happen to a species if every member suddenly lost its ability to reproduce?

Student instructions for students

Students will be prompted with questions, then asked to pay attention to videos. They will be asked to take down notes on each video (keywords on main ideas to compare and contrast later). They will then fill out venn diagrams individually, and then in pairs, and then as a class we will come together to fill them out.

Activities or teacher presentations (Procedures/Plans)

The opening questions, as well as the two videos.

Productive Questions you anticipate using

ASEXUAL/SINGLE-CELL

- What type of reproduction -- asexual or sexual -- do most single-celled organisms use?
- What must a single-celled organism do before it can reproduce?
- When a single-celled organism reproduces, what is the result?

- In what ways, if any, does a single-celled organism differ from its parent?

SEXUAL/FLOWER

- What type of reproduction -- asexual or sexual -- do most plants use?
- What nonliving force do plants rely on most often for pollination?
- What are some of the ways in which plants encourage or trick animals into carrying their pollen to other plants?
- What proportion of each parent plant's genetic material does each offspring plant have?

How/when will you assess learning

I will be prompting students with questions throughout the process (before the videos at the opening, as well as after each video).

Closure: concept recap, preview, assignment

After creating individual and pair venn diagrams, students will share their final ideas and the class will agree on a final venn diagram. From here, I will likely assign a reading on meiosis to begin learning about sexual reproduction on a smaller scale.

Resources/Materials

List presentation materials, lab equipment, handouts,

Videos, venn diagrams for students, large notepad paper or white board with writing utensils for class venn diagram

Assessment/Evaluation

List the assessment instruments/worksheets/etc.

Answers to prompted questions

Individual venn diagrams