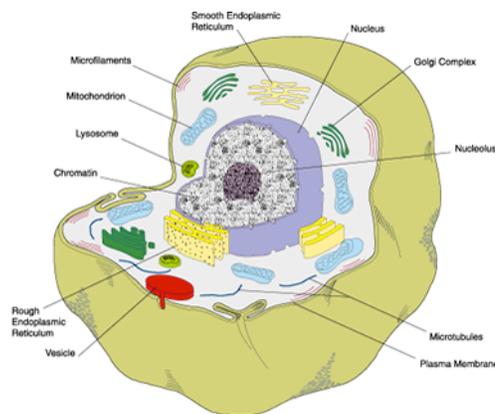# Biology Living Organisms

Grades 6-8

By: Amy, Brandon, and Nan

Overview

Our Gold Stars group (BAN) will be working on "living things" as the topic. The yes/no vocabulary words will help to define the concept of what make something living. This activity can be used at the beginning of the year in a Biology or a Life Science class to help students define what it means for something to be "alive".

We will utilize group participation while modeling with yes/no words on large index cards and placing them on the whiteboard. We will reveal with one yes word and one no word at a time to engage the audience and get them to brainstorm ideas for the topic. As more words are revealed, we will ask the audience more directed questions to identify the concept. Once the audience has a good idea of the concept, we will assess their understanding by asking them to categorize a new word into either the yes or no column. We will also ask and show examples and non-examples to further assess concept attainment.

Afterwards, we will reflect on why it's important to know why something is living or not in the field of Biology.

The students will engage in the following process:

1. Analyze yes/no vocabulary words.

2. Participate in deciphering whether the yes/no vocabulary living organisms.

3. Inquire and infer about the concept by sharing their thoughts with a partner.

4. Adjust and chunk ideas and vocabulary words for living organisms into yes and no columns.

5. Discover a conclusion by using conceptual knowledge.

6. Discussion question: Do you think unethical experimentation can change non-living organisms into living organisms?

This lesson plan will meet the following standards:
• Biological Science Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT: Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment
• Technology Standard 3: Research and Information Fluency.
The instructor will use the Hawaii Teacher Performance Standards, General Learner Outcomes, and Benchmarks to engage students in a successful activity. Students will identify living organisms via yes/no vocabulary cards and conclude in a discussion about biological science examples of ethical and unethical experimentation. Students will show evidence they met or exceeded the Hawaii Content

and Performance Standards by successfully organizing vocabulary words into their correct category, and participate in the discussion by demonstrating in-depth understanding.

Hawaii Teacher Performance Standards

Standard VIII: Uses Assessment Strategies STANDARD STATEMENT VIII: The effective teacher consistently applies appropriate assessment strategies to evaluate and ensure the continuous intellectual, social, physical and emotional development of the learner.

Performance Criteria for Standard VIII: The extent to which the teacher(s):

1. Evaluates and rotates around the room to visually check for understanding
2. Uses a variety of appropriate assessment strategies to enhance knowledge of learners and appropriately modifies teaching and learning strategies.
3. Involves students in developing assessment standards and criteria.
4. Obtains and uses information about students' experiences, strengths, needs and progress from parents, colleagues and students themselves.

Standard VII: Uses Active Student Learning Strategies STANDARD STATEMENT VII: The effective teacher consistently uses a variety of active learning strategies to develop students' thinking, problem-solving and learning skills.

Performance Criteria for Standard VII: The extent to which the teacher(s):

1. Helps students to question, problem-solve, access resources, use information to reach meaningful conclusions and develop responsibility for their own learning.
2. Provides challenging learning experiences which develop higher order thinking skills.
3. Varies instructional roles (e.g., instructor, facilitator, coach, co-learner, audience) in relation to the content and purpose of instruction and students' needs.
4. Engages students in active, hands-on, creative, open-ended, problem-based learning experiences.
5. Provides opportunities for students to apply and practice what is learned.
6. Uses the school's current technologies as tools for teaching and learning.

General Learner Outcomes

GLO #1: Self-Directed Learner (The ability to be responsible for one's own learning)
GLO #3: Complex Thinker (The ability to demonstrate critical thinking and problem solving)
GLO #6: Effective and Ethical User of Technology (The ability to use a variety of technologies effectively and ethically)

Hawaii Content and Performance Standard in Technology

STANDARD III: Research and Information Fluency
Students apply digital tools to gather, evaluate, and use information. Students:

1. Plan strategies to guide inquiry.
2. Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media.
3. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
4. Process data and report results.

Hawaii Content and Performance Standard

Standard 3: Life and Environmental Sciences: ORGANISMS AND THE ENVIRONMENT: Understand the unity, diversity, and interrelationships of organisms, including their relationship to cycles of matter and energy in the environment

Benchmark

Benchmark SC.BS.1.8
Describe the importance of ethics and integrity in scientific investigation

Performance Assessment

Students can identify, describe, and discuss living and non living organisms. (e.g., provides guidelines concerning the appropriate treatment of living things and the environment, credits sources, reduces bias, sometimes adds constraints).

Assessment Rubric

Matching Concept Cards

Meet with Excellence	Meets Proficiency	Developing Proficiency	Well Below
Students can independently and correctly identify all living and non-living organisms	Students can correctly identify most living and non-living organisms with teacher assistance	Students can correctly identify half of the living and non-living organisms with teacher assistance	Students can correctly identify less than half of the living and non-living organisms with teacher assistance

Discussion

Meet with Excellence	Meets Proficiency	Developing Proficiency	Well Below
Students can correctly identify living and non-living organisms and evaluate 1 real world connection	Students can correctly identify living and non-living organisms and analyze 1 real world connection	Students can correctly identify living and non-living organisms and apply 1 real world connection	Students can understand and identify the importance of living and non-living organisms

Formative Assessment Questions
• What do you think the words on these index cards represent?

Summative Assessment Questions
• What are the characteristics of living and non living organisms?
• Do you think unethical experimentation can change non-living organisms into living organisms?

Lesson
living and non-living things (Phase 1 - Presentation of Data)
The students will-
   • Bring seats to the front of the classroom and face the white board.
The teacher will-
   • Prepare students for the discussion by using a clap cue, 2 claps then the students repeat.
   • Introduce the topic by using index cards on the board

Sorting index cards (Phase 2 - Testing Attainment of Concepts)
The students will-
   • Compare and sort index cards into yes and no columns
   • Discuss examples for 2 yes and no index cards
   • Watch a video about living and non living things and discuss
The teacher will-
   • Ask students to sort cards in yes and no columns
   • Ask students to find examples for 2 yes and no index cards
   • Ask students to analyze pictures

Reflections/Discussion (Phase 3 - Analysis of Thinking Strategies)
The students will-
   • Discuss and relate living and non-living examples to the real world
   • Question new ideas
The teacher will-
   • Ask students to find examples in Hawaii and pose new questions

Materials
Based on 26 students
   • Projector and laptop
   • Teacher created samples
   • Internet connection
   • 3x5 index cards