



GCPS C&I Lesson Plan Template

Course Name/Unit/AKS

AKS:AKS 1. obtain, evaluate, and communicate information to describe patterns of what plants and animals need to survive	
Target Science & Engineering Practice:	<u>Materials:</u> • Anchor phenomenon and Noticings & Wonderings anchor chart • Notice and Wonder Organizer • Student Journals • Phenomenon picture of aquaponics system, Disney Clip “Pass the Plate” or the aquaponics lab
QPTS: literacy, collaboration, compare and contrast, summarizing background and prior knowledge	
Learning Target: * I can compare the basic needs of plants and animals. * I can contrast the basic needs of plants and animals. * I can generate questions to compare and contrast the basic needs of plants and animals.	
Activating Strategy <i>How can we access students' prior knowledge and ENGAGE their interest in the phenomenon?</i>	
 • Display the image above, view Disney's Pass the Plate video or visit the STEM Lab to have the students observe/record what they notice/wonder about the Aquaponics System using a Notice/Wonder graphic organizer in their STEM journals. • The students will be asked to pay close attention to what is happening with the fish, plants and their environment and to record observation in their stem journal.	



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- The students will break into small groups to share recordings and notice how their observations are the same and different.

Differentiated Small Groups

*How can we have students collaboratively participate in an activity that facilitates conceptual change as they **EXPLORE** the phenomenon?*

Modeling with... Students will reflect on the questions that they produced and reflect on the validity of the questions. They will determine which questions are the most interesting and the most informative.

Technology..... student will use observation of the aquaponics system, links and critical thinking to answer the questions

Small group collaboration.... Students will be broken into 4 groups (by interest) and each group will choose a question to answer about the aquaponics system.

Teacher-led small group....Teacher will support students to find answers to questions that interest the student. The teacher will guide students to collaborate to research using observations, critical thinking or technology to find their answers.

Architecture of a Mini-Lesson

*How can we have students **EXPLAIN** the phenomenon?*

Background/Prior Knowledge: We have learned thatplants need water,sunlight,air animals need food, water, shelter,air. Students should recognize that plants and animals have basic needs that must be met in order to stay healthy.

Teaching Point/Purpose: Today we are going to learn that..... the needs of both fish and plants can be met together in an indoor system called an Aquaponics System and why it might be helpful to raise fish and plants together.

Teaching:

The teacher will **think aloud** ... by modeling how to record observations and generate questions/ans. to compare the needs of plants and animals in the aquaponics system. The teacher will use question stems such as (What is growing?, What are the plants/animals growing in? Where are the plants/animals getting their food? etc.)

Active Engagement: The Students work in small groups to generate questions about the aquaponics system. Then the questions will be posted in 4 corners and students must go to the corner that they think has the most interesting question/the most important question/ which questions can be answered by observation and which questions need more research etc.and explain their thoughts.

Link: Aquaponics Indoor Garden: <https://youtu.be/Uer7cbJbU7E>

[Making your aquarium an aquaponics system](#)

Differentiated Small Groups



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*How can we challenge and/or deepen students' understanding of the phenomenon through new experiences? How can students **ELABORATE** on this phenomenon?*

Modeling with...Students will reflect on the questions that they produced and reflect on the validity of the questions. They will determine which questions are the most interesting and the most informative.

Technology..... students will be given choices of using the aquaponics system, links and critical thinking to answer the questions.

Small group collaboration.... Students will be broken into 4 groups (by interest) and each group will choose a question to answer about the aquaponics system. Students will be given choices about how they want to organize/record their findings in their STEM journals (drawing, writing or graphic organizer, etc..)

Teacher-led small group....Teacher will support students to find answers to questions that interest the student. Teacher will guide students to collaborate to research using observations, critical thinking or technology to find their answers.

Summarizing

*How can we assess, or **EVALUATE**, student understanding of the phenomenon, including both content and the science & engineering practice embedded in the AKS?*

The students will tell what they learned about the patterns of what plants and animals need in the aquaponics system.