

Name:

Teacher:

Class:

Date:

## Aquaponics Walk-About: An Introduction

*Today we start Aquaponics! Through the observations and the work completed over the next two days, you will find you know more about this sustainable, gardening practice then you realize.*

You will be working at six different stations answering questions and making sketches of the different Aquaponic systems. Be sure to complete the correct section in this packet to its corresponding station.

### **STATION 1**

**In the box below, DRAW and LABEL the Aquaponics system. DRAW IN ARROWS to show the cycle-flow of water through the system.**

1. As you look at the tank, is water being pumped or filtered into the tank? \_\_\_\_\_
2. If not, why not? \_\_\_\_\_
3. What does circulated water provide plants and fish? \_\_\_\_\_  
\_\_\_\_\_
4. What organisms are part of this Aquaponic ecosystem? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. For the organisms you listed, what do they need to survive and how might they help each other survive? \_\_\_\_\_  
\_\_\_\_\_

6. What is the light for? \_\_\_\_\_

## **STATION 2**

This reading about “Good Bacteria” is a section from the book, The World of Microbes: Bacteria, Viruses, and Other Microorganisms.

1. Look over the color copy of the KIM VOCABULARY sheet for words found in the reading.
2. Read both sides of the “Good Bacteria” sheet.
3. Bacteria play a very important role in the process of Aquaponics; after reading this section, discuss with your group what the role of bacteria is.
4. As a group, develop a 3 minute skit to present to the class. The skit could come directly from what you read- portraying the relationship between bacteria, algae, animals, and plants through nitrogen fixation (consider the “Decomposers and Recyclers” paragraphs or the “Symbiotic Bacteria” paragraphs) OR come from your understanding of the cycle of what is happening between fish, bacteria, and plants in the aquariums that benefit humans.
5. Use a blank piece of paper from the table to develop the skit and to assign roles for everyone in the group. Go in the hallway to practice your skit. All skits will be presented next Tuesday.

## **STATION 3**

In the box below, **DRAW** and **LABEL** the Aquaponics system. DRAW IN ARROWS to show the cycle-flow of water through the system.



1. As you look at the tank, is water being pumped into the tank? \_\_\_\_\_
2. Is air being pumped into the tank? \_\_\_\_\_
3. Why is it necessary for air to be pumped into the tank? \_\_\_\_\_  
\_\_\_\_\_
4. Is water being circulated through this tank? If so, How? \_\_\_\_\_  
\_\_\_\_\_
5. Why might water circulation be an important part of this system? \_\_\_\_\_  
\_\_\_\_\_
6. How do you think these plants survive without soil? \_\_\_\_\_  
\_\_\_\_\_

#### **STATION 4**

1. Read the NEWSELA article, "Growing crops on water, with a little help from his fish friends."
2. Once everyone has read the article, discuss the article by summarizing what it was about.
3. In the space below, write ONE sentence that summarizes the article from what your group discussed.
  
  
  
  
  
  
  
  
  
  
4. In the space below, write your own AHA! statement- which is a statement of something you found really interesting from the article.
  
  
  
  
  
  
  
  
  
  
5. In the space below, write a sentence that makes a connection between you and John Morris or between you and something else from the article.

### **STATION 5**

In the box below, **DRAW and LABEL** the Aquaponics system. **DRAW IN ARROWS** to show the cycle-flow of water through the system.



1. As you look at the tank, is water being pumped into the tank? \_\_\_\_\_
2. In this system, water is continuously cycled through the PVC, why is this important for the plants? \_\_\_\_\_  
\_\_\_\_\_
3. Why is this important for the fish? \_\_\_\_\_  
\_\_\_\_\_
4. What do plants need to survive? \_\_\_\_\_
5. Where do these elements come from in this system? \_\_\_\_\_  
\_\_\_\_\_
6. What do fish need to survive? \_\_\_\_\_
7. Where do these elements come from in this system? \_\_\_\_\_  
\_\_\_\_\_

### **STATION 6**

Read questions 1 through 5, with your group **BEFORE** reading the article “You Probably Don’t Have a Long Enough Attention Span to Read This.” After reading the article, answer all of the following questions in **COMPLETE SENTENCES**.

1. What is our current average attention span? What was our attention span in 2000? What is the attention span of a goldfish? (*paragraph 1*)
2. What is the percentage of 18 to 24-year-olds that use their phones when they are bored? (*paragraph 3*)
3. What is the effect of technology on your brain and attention span? (*paragraphs 4 and 6*)
4. What are the two views for the effects of shorter attention spans on our future? (*paragraph 6*)
5. Can we increase attention span? (*paragraph 9*)
6. How often do you use technology? Do you have a hard time focusing?
7. Do you think limiting the time spent on technology would improve our brain functions?
8. How do you see the world operating 20 years from now with all the new technology?
9. Why do you think this article was chosen on the day we start Aquaponics?

**STOP!!!! THIS PAGE WILL BE COMPLETED ON TUESDAY, NOVEMBER 10,**

**AFTER YOU COMPLETE STATIONS 1 - 6!**

*Now that you have observed the three Aquaponic systems, complete the following sentences.*

**Aquaponics is ...**

**A healthy Aquaponic system, needs...**

Based on your observations, make a CLAIM as to which Aquaponic System you think will grow the healthiest plants for our consumption.

What EVIDENCE will you need to prove your CLAIM?

Provide your REASONING for why the EVIDENCE you listed proves your CLAIM.