



Connecting AgSTEM to AKS  
 Mini-Lesson  
 Asynchronous 1

**\*\*\*Before meeting as a group, spend 15-20 minutes individually looking over the assignment and writing down beginning ideas. During your individual time, focus on your grade level so that you are the expert when you come together with your group.**

	K	1st	2nd	3rd	4th	5th
<b>AKS</b>	6. obtain, evaluate, and communicate information to compare the similarities and differences in groups of organisms	1. obtain, evaluate, and communicate information about the basic needs of plants and animals	3. obtain, evaluate, and communicate information about how plants and animals cause changes to the environment	2. obtain, evaluate, and communicate information about the physical attributes of rocks, minerals, and soils	4. obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem	6. obtain, evaluate, and communicate information to group organisms using scientific classification procedures

As a team, review the vertical curriculum map above. Use the map to complete the following questions and tasks.

- 1) The verbs **obtain**, **evaluate**, and **compare** are used in the AKS for all six grade levels.
  - a) What does each verb mean in terms of what students should be able to do?

Obtain: Gather information. This information can be from reading, models, or investigations. This may require students to gather data, use computational thinking, ask questions, or define problems.

Evaluate: Reason with the information they obtained. This requires students to develop and use models to predict or provide evidence, engage in argument from evidence, construct explanations and design solutions, analyze and interpret data, and use mathematics and computational thinking.

Communicate: Communicate their understanding of scientific phenomena. This can be done in many different ways such as developing and using models, engaging in argument from evidence (written or oral), constructing explanations or designing solutions, and/or using mathematics or computational thinking.

b) What SKILLS do students need to be able to have to “obtain” information, “evaluate” information, and “communicate” information?

Students will need grade level reading and writing skills as well as math skills. Students will also need to be able to express their thoughts to others verbally.

c) How do these verbs differ between grade levels? For example, what does communicate look like for a Kindergartner vs a 5th grader?

	information...	Obtain	Evaluate	Communicate
K	to compare	<i>various texts, text features</i> (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media	Describe how <i>specific images</i> (e.g., a diagram showing how a machine works) support a scientific or engineering idea.	information or design ideas and/or solutions with others in oral and/or written forms using <i>models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.</i>
1	about needs			
2	about HOW			
3	about attributes	information from books and/or other <i>reliable media</i>	Compare and/or combine <i>across complex texts</i>	Scientific and/or technical information orally and/or
4	about roles within a			

	system	written text with that contained in <i>corresponding tables, diagrams, and/or charts</i>	and/or other reliable media to support the engagement in other scientific and/or engineering practices.	in written format, including various forms of media and may include <i>tables, diagrams, and charts.</i>
5	to group			

2) What similarities do you see between the AKS across grade levels?

They all use the verbs obtain, evaluate, and compare. All of the AKS deal with living things except the 3rd grade AKS.

3) Thinking about how the AKS are designed to build on each other, do you notice any gaps between grade levels where students may need further instruction to be able to master the AKS?

K, 1, and 2 seem to focus on getting information from text features, diagrams, models, and drawings with little reliance on text as the main source of information. Starting in 3rd grade, obtaining information switches to more of a reliance on text. Students will need to be able to gather important information from many different text sources as well as from tables, diagrams, and charts. They will also need to be able to determine the reliability of the media they are using. To do this students in third, fourth, and fifth grade will need continuing and specific instruction on how to determine what is the important information in a text and how to determine if it is reliable.

4) Rewrite the standards in “kid-friendly” language. Write them as “I can” statements that you may use in your classroom.

Provide an example:

	K	1st	2nd	3rd	4th	5th
<b>AKS</b>	6. obtain, evaluate, and communicate information to compare the similarities and differences in groups of	1. obtain, evaluate, and communicate information about the basic needs of plants and animals	3. obtain, evaluate, and communicate information about how plants and animals cause changes to the environment	2. obtain, evaluate, and communicate information about the physical attributes of rocks, minerals, and soils	4. obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem	6. obtain, evaluate, and communicate information to group organisms using scientific classification procedures

	organisms					
<b>Learning Target(s)</b>	<p><b>*I can compare</b> the basic needs of plants and animals.</p> <p>*I can contrast the basic needs of plants and animals.</p> <p><b>*I can generate questions with prompting</b> to compare and contrast the basic needs of plants and animals.</p>	<p>*I can identify the parts of a plant.</p> <p>*I can identify the basic needs of plants and animals.</p> <p><b>*I can explain the</b> basic needs of an animal and plant.</p> <p>*I can determine if a plant or animal has all of its needs met.</p> <p>*I can compare and contrast the basic needs of plants and animals.</p> <p><b>*I can generate questions to</b> compare and contrast the basic needs of plants and animals.</p>	<p>* I can ask questions <b>and gather information about changes to the environment</b> in our community due to plants and animals.</p> <p>* I can explain the cause of changes in the environment due to plants and animals.</p> <p>* I can <b>construct a written explanation of the causes</b> of changes to the environment due to plants and animals.</p>	<p>*I can gather information about the physical properties of rocks, minerals, and soils.</p> <p>*I can use this information to reason or think critically about rocks, minerals and soil.</p> <p>*I can discuss, write about, or draw what I have learned.</p>	<p>*I can <b>gather information about the role of organisms and how energy flows</b> within an ecosystem.</p> <p><b>*I can evaluate and communicate this information</b> by writing, drawing, or discussing what I learned.</p>	<p><b>*I can use multiple data sources to develop a model that shows how animals are sorted into groups.</b></p> <p><b>*I can use multiple data sources to develop a model that shows how plants are sorted into groups.</b></p>

5) Now that we know what students are supposed to master, you will be working with your team to brainstorm some lesson ideas connecting AgSTEM to the AKS.

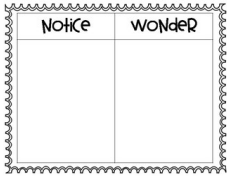
*First, here is an example of how lessons can be built on one another vertically.*

- ALL GRADE LEVELS: Students will go visit the aquaponics system. Students will bring a notebook and a writing utensil to record their observations that they make about the system. Teachers should have clear expectations for what students should be looking for and recording.
  - K: Color and size of fish and plants
  - 1st & 2nd: The environment of the aquarium, the environment of the plants, the environment of the classroom
  - 3rd: Specific physical attributes of the plant section of the system
  - 4th: The environment, the connection between the aquarium and the plants
  - 5th: The organisms within the system
- ALL GRADE LEVELS: Students should return to their classrooms where they will work within small groups to discuss their observations.
- Grade appropriately: Students should be asked to report on their findings. For example, in Kindergarten students may be asked to draw plants and animals in groups based on similarities whereas in 4th grade students may be asked to create a flowchart based on their findings.
- ALL GRADE LEVELS: Students should work together to present their findings. This can be done in class presentations, a written paper, or group project, grade appropriately

Now, using the chart below (copy & paste your learning targets from #4 into this chart), brainstorm lesson topic ideas for each grade level.

	K	1st	2nd	3rd	4th	5th
<b>AKS</b>	6. obtain, evaluate, and communicate information to compare the similarities and differences in groups of organisms	1. obtain, evaluate, and communicate information about the basic needs of plants and animals	3. obtain, evaluate, and communicate information about how plants and animals cause changes to the environment	2. obtain, evaluate, and communicate information about the physical attributes of rocks, minerals, and soils	4. obtain, evaluate, and communicate information about the roles of organisms and the flow of energy within an ecosystem	6. obtain, evaluate, and communicate information to group organisms using scientific classification procedures

<b>Learning Target(s)</b>	<p>*I can compare the basic needs of plants and animals.</p> <p>*I can contrast the basic needs of plants and animals.</p> <p>*I can generate questions to compare and contrast the basic needs of plants and animals.</p>	<p>*I can identify the parts of a plant.</p> <p>*I can identify the basic needs of plants and animals.</p> <p>*I can explain the basic needs of an animal and plant.</p> <p>*I can determine if a plant or animal has all of its needs met.</p> <p>*I can compare and contrast the basic needs of plants and animals.</p> <p>*I can generate questions to compare and contrast the basic needs of plants and animals.</p>	<p>* I can ask questions and gather information about changes to the environment in our community due to plants and animals.</p> <p>* I can explain the cause of changes in the environment due to plants and animals.</p> <p>* I can construct a written explanation of the causes of changes to the environment due to plants and animals.</p>	<p>*I can gather information about the physical properties of rocks, minerals, and soils.</p> <p>*I can use this information to reason or think critically about rocks, minerals and soil.</p> <p>*I can discuss, write about, or draw what I have learned.</p>	<p>*I can gather information about the role of organisms and how energy flows within an ecosystem.</p> <p>*I can evaluate and communicate this information by writing, drawing, or discussing what I learned.</p>	<p>*I can use multiple data sources to develop a model that shows how animals are sorted into groups.</p> <p>*I can use multiple data sources to develop a model that shows how plants are sorted into groups.</p>
<b>Lesson Ideas 1-3 per grade level</b> (This can be a bulleted list)	<b>Kindergarten</b> As they observe the aquaponics system the students will illustrate/write	<b>1st Grade</b> -Students will build a plant model using items to represent each part of the plant	<b>2nd Grade</b> * Draw and label each part of the aquaponic system or the “environment” for	<b>3rd Grade</b> - Draw and label the parts of the plant section of the system. - Measure the	<b>4th grade</b> Draw food chains using components of aquaponics system, label producers and	<b>5th Grade</b> -Have students work in a group to develop a model that shows how the

	<p>about what they Notice (See) and Wonder about the fish and plants/or their surroundings</p> <p>-They compare/contrast the characteristics ( color, size, shape ect..) of the fish and plants....</p>  <p>-Follow up discussion will take place in the classroom where the students will turn and talk about their observations/recordings. TTW use questioning to prompt conversation and understanding</p>	<p>based on their observations.</p> <p>-Students will make a venn diagram to compare and contrast what animals and plants need to survive based on their observations on what takes place in the aquaponics.</p> <p>*Instructors can take it a step further and have students work in groups to discuss how the plants and animals work together in the aquaponics system to keep each other alive as they keep in mind the basic needs that living things need to live.*</p>	<p>our plants and fish.</p> <p>*Reflect/Discuss/ Illustrate how each part of the environment we set up is affected by the other components.</p>	<p>growth of the plants to the nearest ¼ of an inch monthly and turn the data into a scaled graph.</p> <p>- Compare and contrast aquaponics v. traditional agriculture using an infographic</p> <p>- Construct an explanation of what will happen to an organism if a habitat is manipulated or changed e.g. advancement of technology.</p>	<p>consumers</p>	<p>plants in the system are classified</p> <p>-Have students work in a group to develop a model that shows how animals in the system are classified</p> <p>-Provide students with at least 1 plant and 1 animal that could be used instead of what we have and then have students sort them on their group classifications</p>
--	---	---	---	---	------------------	--

6) Submit this document (one per group) to the Google Form on the Google Site.