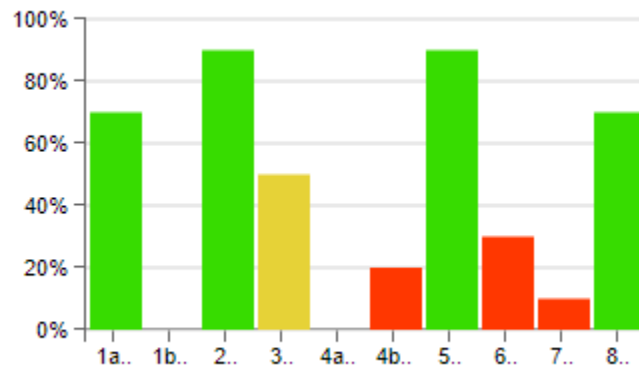


Science: Investigation 3 I-Check Data – XXXX XXXX November 10, 2022



**Max Code
Frequency Chart**
tells you at a glance
which items were
problems for the class

**Class Diagnostic
Report**
provides the standards
and percentage

Standard	Description	Items	Avg.
3-LS2-1	Construct an argument that some animals form groups that help members survive.	1	83%
3-LS4-3	Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	8	67%
3-LS4-4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	1	48%

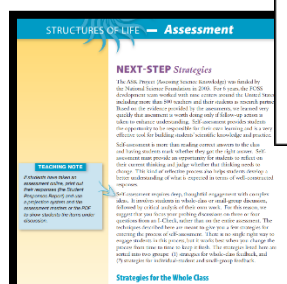
If this were my data, I would revisit standard 3-LS4-4: Make a claim

And revisit 3 assessment items: 1b, 4, and 7

I have included the data with the items for easy reference.

Thanks again for being open and willing to do the I-Checks. I hope you find this data helpful and able to use it to guide your next steps in science instruction.

In the FOSS Teacher Investigation Guide, behind the assessment tab, there is some good information about **Next-Step Strategies**. I have included this information at the end of this document for your convenience.



Item 1b.

Code Means

Response	Students	Rationale	Code
open response item		can use evidence to support a claim that organisms that blend into their environment have a better chance to survive.	4 (0%)
-	Bryce H, Nadiah R	used evidence to support a claim that organisms that blend into their environment have a better chance to survive; needs to correct minor errors.	3 (20%)
-	Janis A, Jayden H, Mahalia B, Myles H, Phaendra D	probably analyzed data about the relationship between color of organisms and the environment, but needs to provide data to support the claim.	2 (50%)
-	Abraham D, Adalynn C, Addisyn B	needs to be able to analyze data about the color of organisms and the environment in order to explain cause and effect relationships.	1 (30%)
made no attempt		needs to be able to analyze data about the color of organisms and the environment in order to explain cause and effect relationships.	0 (0%)

1. Populations of brown, green-brown, and green walking sticks lived in the forest. Then the environment changed. Students collected data about five generations of walking sticks in the new environment.



	Brown		Green-Brown		Green	
	Started	Survived	Started	Survived	Started	Survived
Generation 1	16	14	16	7	16	0
Generation 2	32	16	16	7	0	0
Generation 3	33	21	15	4	0	0
Generation 4	41	20	4	4	0	0
Generation 5	44	20	4	4	0	0

- a. From the data in the table, you can make the claim that the new environment probably had _____.

(Mark the one best answer.)

- ☐ A mostly green leaves
- ☒ B more brown leaves than green leaves
- ☐ C an even mix of green leaves and brown leaves
- ☐ D more green leaves than brown leaves

- b. Explain the reasoning for the claim you chose.

Key Points

- All populations started with 16 individuals.
- At the end of five generations, only the number of brown walking sticks had increased; the other colors decreased by a lot.
- Brown walking sticks hide better in leaves that are the same color as they are, so most leaves

ITEM 1ab Next Steps

Have students use the online activity called "Walking Stick Survival" to run simulations and discuss results. Focus on why the results occurred. Then return to this item and let students revise their answers with color. See the Next-Step Strategies section in the Assessment chapter for more information.

Item 4a.



Code Means

Response	Students	Rationale	Code
N, Y, Y, Y		can predict that when the environment changes some organisms will survive, some will move to new environments, and some will die.	3 (0%)
marked one incorrectly	Abraham D, Adalynn C, Bryce H, Jayden H, Mahalia B, Myles H, Nadiyah R, Phaedra D	predicted that when the environment changes some organisms will survive, some will move to new environments, and some will die; needs to correct one answer.	2 (80%)
any other response	Addisyn B, Janis A	needs to remember that when the environment changes some organisms survive, some move to new environments, and some die.	1 (20%)
made no attempt		needs to learn that when the environment changes some organisms survive, some move to new environments, and some die.	0 (0%)

Item Analysis

Correct Answer	% Correct	Description	Students answering incorrectly
N	100%	All the insects will die.	
Y	90%	Some insects will die.	Addisyn B
Y	80%	Some insects will move to cool shady spots in the stream to live.	Addisyn B, Janis A
Y	20%	Some insects will grow faster in the warmer stream water.	Abraham D, Adalynn C, Bryce H, Jayden H, Mahalia B, Myles H, Nadiyah R, Phaedra D

Item 4b.

Code Means

Response	Students	Rationale	Code
open response item	Mahalia B, Nadiyah R	can explain why changes in the environment cause some organisms to survive, some to move to new environments, and some to die.	4 (20%)
-	Adalynn C	constructed a general explanation about why changes in the environment affect organisms in different ways; needs to correct minor errors.	3 (10%)
-	Abraham D, Jayden H	constructed a general explanation about why changes in the environment affect organisms in different ways; needs to be able to support explanation with specific examples.	2 (20%)
-	Bryce H, Janis A, Myles H, Phaedra D	needs to be able to explain why changes in the environment cause some organisms to survive, some to move to new environments, and some to die.	1 (40%)
made no attempt	Addisyn B	needs to be able to explain why changes in the environment cause some organisms to survive, some to move to new environments, and some to die.	0 (10%)

4. In the spring, a water insect that lives in streams lays eggs. The eggs hatch, and there are many baby insects. Then it is unusually hot for a few weeks.

a. Write **Y** (yes) next to each statement that will most likely happen as a result of the change in temperature. Write **N** (no) next to each statement that probably won't happen.

- N All the insects will die.
Y Some insects will die.
Y Some insects will move to cool shady spots in the stream to live.
Y Some insects will grow faster in the warmer stream water.



b. Explain the reasoning for the answer(s) you chose about what might happen.

Key Points

- Deaths depend on how hot the temperature was.
- Most likely the change will lead to some deaths.
- Insects probably have an instinct to move from hot to cooler areas.
- Some insects grow faster at higher temperatures, if they aren't too hot.

► **ITEM 4ab Next Steps**
 Have a key-points discussion with students to determine what are the important things to include in their answers, especially item b. See the Next-Step Strategies section in the Assessment chapter for more information.

Item 7.

Code Means

Response	Students	Rationale	Code
open response item	Bryce H	can construct an argument with specific examples about how humans can disrupt a food chain that helps organisms survive.	4 (10%)
-	Janis A, Mahalia B	constructed an argument about how humans can disrupt a food chain that helps organisms survive; needs to correct minor errors.	3 (20%)
-	Adalynn C, Jayden H, Myles H, Phaedra D	knows that humans can disrupt the food chain that helps organisms survive; needs to construct an argument with specific examples.	2 (40%)
-	Abraham D	needs to be able to construct an argument with specific examples that humans can disrupt a food chain that helps organisms survive.	1 (10%)
made no attempt	Addisyn B, Nadiyah R	needs to be able to construct an argument with specific examples that humans can disrupt a food chain that helps organisms survive.	0 (20%)

7. A family builds a new house near a cold-water stream. They plan to empty used warm water from their washing machine into the stream.

Here is a food chain that shows some of the plants and animals that live in the stream.

Algae → Water snails → Crayfish → Trout (a type of fish)

Write a short note to tell the family why their plan is not a good idea and why.

Key points

- This is a bad idea because we know that change in temperature can affect the survival of organisms; it can increase or decrease their chances of survival.
- A change in number of organisms can affect the whole ecosystem.

► **ITEMS 5–6 Next Steps**
 Use the group consensus/whiteboards strategy to help students reflect on their answers to these items. Review the items, then have groups write their final answers on the whiteboards. When the boards are held up, discuss why students chose the answer they did. If there is consensus right away, have each group discuss why the other possible answers are not the best. For more information about this strategy, see the Next-Step Strategies section in the Assessment chapter.

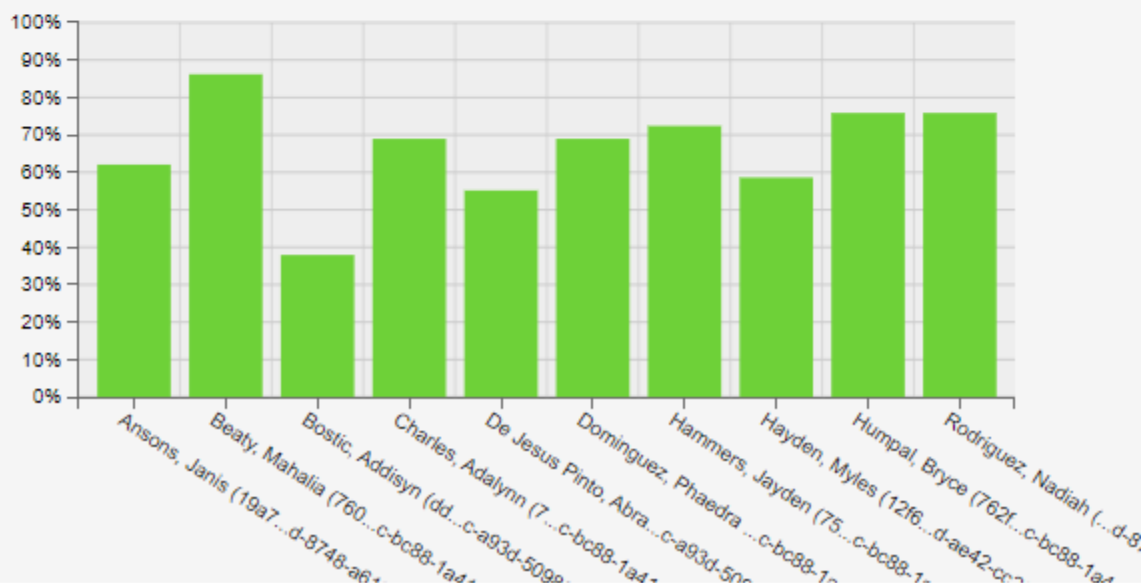
Total Class - Grades

Students	Description
Mahalia B A+	Strategic Level Performance on an item or assessment shows exceptional understanding of three-dimensional learning. Students are able to apply their knowledge of practices, disciplinary core ideas, and crosscutting concepts to explain novel phenomena or solve new problems. Students at this level continue to build a network of knowledge, practice, and crosscutting concepts to bridge disciplines. They can apply all of those to real-world phenomena and design problems.
Bryce H, Jayden H, Nariah R A	Conceptual Level Performance on an item or assessment shows well-developed understanding of three dimensional learning. Students are making connections among practices, core ideas, and crosscutting concepts in order to answer more complex questions and solve more complex problems. To get to the next level (strategic), students need to continue to build connections and be able to transfer this knowledge from the classroom to real-world phenomena.
Abraham D, Adalynn C, Janis A, Myles H, Phaedra D B	Recognition Level Performance on an item or assessment shows developing understanding of three-dimensional learning. Students have built a foundational repertoire of pieces of knowledge and practices, and use academic language with greater facility. To get to the next level (conceptual), students need to continue to add knowledge about practices, core ideas, and crosscutting concepts, and then build connections among those pieces to form more complex understandings about phenomena.
Addisyn B C	Notions Level Performance on an item or assessment shows relatively little understanding of three dimensional learning. Students may include some scientific vocabulary or recall of simple facts or procedures, but there is little evidence of the impact of instruction. To get to the next level (recognition), students need to develop practices, begin to incorporate academic language in their communication, and construct more pieces of knowledge that help explain phenomena.

Individual Student Data

Student	Score (Avg.)
Ansons, Janis (19a793ac-4e28-11ed-8748-a61266cbc57b)	62
Beaty, Mahalia (760c465b-1796-11ec-bc88-1a41f91fae0c)	86
Bostic, Addisyn (ddece10-6a8d-11ec-a93d-5098085ebfa3)	38
Charles, Adalynn (764c5e6d-1796-11ec-bc88-1a41f91fae0c)	69
De Jesus Pinto, Abraham (b04ef39e-6db2-11ec-a93d-5098085ebfa3)	55
Dominguez, Phaedra (758d3514-1796-11ec-bc88-1a41f91fae0c)	69
Hammers, Jayden (7582104e-1796-11ec-bc88-1a41f91fae0c)	72
Hayden, Myles (12f61cdf-3a07-11ed-ae42-cc203ccd522f)	59
Humpal, Bryce (762fa2be-1796-11ec-bc88-1a41f91fae0c)	76
Rodriguez, Nadiah (ae7b5eef-5718-11ed-8748-a61266cbc57b)	76

Score (Avg.)



an argument to convince the other corners that their answer is correct. As in a class debate, students are allowed to disagree with themselves if they become convinced their position is flawed or the reasoning of another group is more convincing. They then move to that corner and continue by helping their new group shape its argument. (Don't be surprised if you find all students migrating to one corner before the presentation of arguments even begins!)

Key points. Begin this strategy by discussing the item in question. After it is clear that students understand what is intended by the item prompt, call on individuals or groups to suggest key points that should be included in a complete answer. Write the key points on the board as phrases or individual words that will scaffold students' revision, rather than complete sentences they might mindlessly copy. When students return to their responses, they can number each of the key points they originally included in their answers, then add anything they missed.

Revision with color. Another way that students can revise their answers after a key-points discussion is to use colored pens or pencils and the three C's. As they read over their responses, they *confirm* correct information by underlining with a green pen; they *complete* their responses by adding information that was missing, using a blue pen; and they *correct* wrong information, using a red pen.

Review and critique anonymous student work. Use examples of student work from another class, or fabricate student work samples that emulate the problems students in your class are having. Project the work, using an overhead projector, a document camera, or an interactive whiteboard. Have students discuss the strengths and weaknesses of the responses. This is a good strategy to use when first getting students to write in their notebooks. It helps them understand expectations about what and how much to write.

Line of learning. Many teachers have students use a line of learning to show how their thinking has changed. When students return to the original work (embedded or benchmark) to revise their understanding of a concept, they start by drawing and dating a line of learning under the original writing. The line of learning delineates students' original, individual thinking from their thinking after a class or group discussion has helped them reconsider and revise their thoughts.

Find the problems. Review the codes you have recorded and let students know how many items they got right and how many need to be corrected. Give them time in class to work in groups or individually to find their mistakes and correct them. They can turn in the assessment again, or write a few sentences in their notebooks explaining how their thinking has changed.

STRUCTURES OF LIFE — Assessment

► NOTE

You can make inexpensive whiteboards by using card stock and plastic sheet protectors. Students use whiteboard marking pens to write answers. Old socks make great erasers.

Group consensus/whiteboards. Have students in each group (or pairs in each group) work together to compare their answers on selected I-Check questions or key points of a notebook entry. They first create a response that the group agrees is the best answer. Groups write their responses on a whiteboard. When you give a signal, one student in each group holds up his or her whiteboard and compares answers. The class discusses any discrepant answers.

Class debate. A student volunteers an answer to an item on an assessment (usually one that many students are having trouble with or one that elicits a persistent misconception). That student is in charge of the debate. He or she puts forth an answer or explanation. Other students agree or disagree, and must provide evidence to back up their thinking. Students are allowed to disagree with themselves if they hear an argument during the discussion that leads them to change their thinking. You can ask questions to keep the discussion on track, but otherwise you should stay on the sidelines.

Critical competitor. Use the critical-competitor strategy when you want students to attend to a specific detail. You need to present students with two things that are similar in all but one or two aspects. You can use any medium: two drawings, two pieces of writing, or a combination (such as a diagram compared to a description). The point is to compare two pieces of communication or representations in some way that will help students focus on an important detail they might be missing.

Sentence frames. After completing other self-assessment activities, have students consider all the items on the assessment and write a short reflection, using sentence frames. This strategy directs students to choose one or two items that they would like to tell you more about.

I used to think ____, but now I think ____.

I should have gotten this one right, but I just ____.

I know ____, but I'm still not sure about ____.

The most important thing to remember about ____ is ____.

Can you help me with ____?

I shouldn't have gotten this one wrong, because I know ____.

I'm still confused about ____.

Next time, I will remember to ____.

Now I know ____.

Strategies for Individual Students and Small Groups

Feedback notes. As you read through students' notebooks, add self-stick notes with comments or questions that help guide students to further reflect on and improve their understanding.

Response log. Set up a response log at the back of students' science notebooks (before or after the index or glossary if those are used). Fold a notebook page in half, or draw a line down the center of the page. Have students write "Teacher Feedback" at the top of the left side of the page and "My Responses" at the top of the right side of the page. When you want a student to think about something in his or her notebook, write your note in the "Teacher Feedback" column (or students can move a self-stick note from another page to the response log). Students then respond in the right column, either addressing your comment there or telling you which page to turn to in order to see how they have responded.

Conferences. Use silent-reading time or other times when students work independently to confer with small groups or individual students.

Centers. Set up a center at which students can continue to explore their ideas and refine their thinking. You might pair students so that a student who understands the concept well works with another student who needs some help.

Reteach or clarify a concept. Set up a modified investigation in which a small group of students works with the concept again.

NOTE

You can also create feedback notes for embedded assessments using FOSSmap.

