STEM-SMART ONLINE Learning

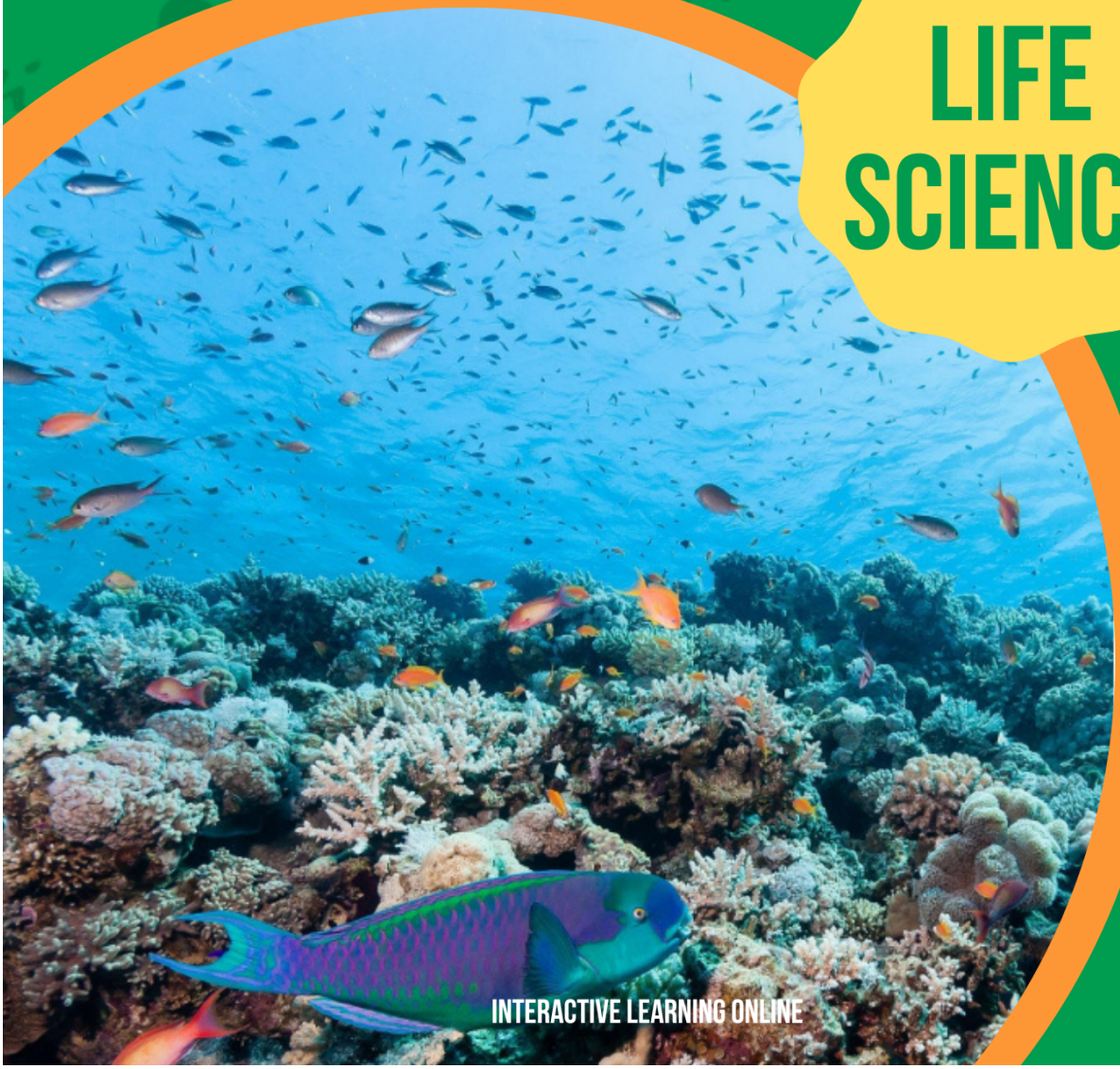
Science Check-up!

Next Generation Science Standards

English/Spanish Edition

Teacher's Guide

LIFE SCIENCE



INTERACTIVE LEARNING ONLINE

Science Check-up

Next Generation Science Standards

Life Science

Teacher's Guide

English/Spanish Edition

STEM-Smart

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Science Check-up:
Next Generation Science Standards
Life Science

About *Science Check-up*

**Science Check-up:* Life Science is an online supplement that focuses on the big ideas outlined in the *Next Generation Science Standards (NGSS)* that students encounter in their high school curriculum. It is designed to help students better understand the science content learned and to prepare for tests.

*Questions in the reviews feature immediate feedback for students, opportunities to *go back* and answer questions until they get them right, and a report, "*How did I do?"*

*Teachers can generate single unit and all-unit tests on key science content and see tables of analytics and pie charts of responses on all questions in the reviews and tests to facilitate further instruction as needed.

*Teachers have total control of student access to *Science Check-up* reviews. Individually assigned usernames and passwords allow students to access only those reviews enabled by the teacher. Teachers can select reviews by simply highlighting and clicking on the reviews listed in the settings on their teacher *dashboard* for each science unit.

Dual languages

**Science Check-up* can be read in English or Spanish with a simple click of the *EN*/SP language buttons in the tool bar. Second language learners can use a built-in translation function to see and hear all text in both Spanish and English, enhancing both their science content knowledge and their language skills.

How to use *Science Check-up*

*Teachers have total control of student access to *Science Check-up* and what science content students get to review. Individually assigned usernames and passwords allow students to access only those reviews enabled by the teacher. Teachers do this by simply highlighting and clicking on reviews listed in the table of contents for each science unit on their teacher *dashboard*. Any kind of smartboard can be used to demonstrate access and operation of *Science Check-up* as a whole class activity, but the real power of *Science Check-up* is to have students work on the reviews and practice items individually or in teams, in class or out of class, to maximize the benefit of its interactivity and immediate feedback. The table on the following page shows the alignment of the NGSS and suggested *Science Check-up* reviews.

Science Check-up works!!

Analyses of pilot study scores of 2,000 students using *Science Check-Up* showed an average gain of 22% in the number of students classified as proficient or advanced on their state science test!

Science Check-up/ NGSS Life Science Alignment

Molecular and Cellular Biology	Suggested Lessons
Cell structures and functions; Cellular processes; Organs and organ systems	Lesson 1.: How do cells work? Lesson 2: What do cells do? Lesson 3: What makes a cell a cell? Lesson 4: What's up with organ systems? Lesson 5: How do organ systems work? Lesson 6: Building bodies

Classification, Heredity, and Evolution	Suggested Lessons
Evolution is the unifying idea of biology; Classification of organisms; Natural Selection; DNA transmits genetic information from one generation to another; DNA may be analyzed and manipulated;	Lesson 1: What's up with this evolution stuff? Lesson 2: DNA transmits information Lesson 3: How mutations happen Lesson 4: Selection happens Lesson 5: Understanding evolution Lesson 6: How does evolution work? Lesson 7: Advantages and disadvantages? Lesson 8: What makes living things unique? Lesson 9: What are adaptations? Lesson 10: Endless adaptations

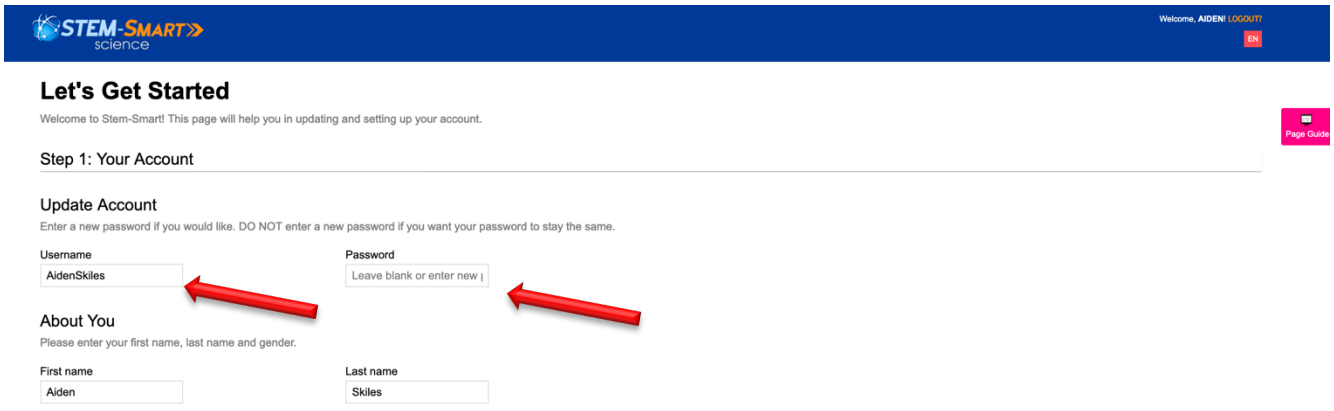
Organisms, Populations, and Ecosystems	Suggested Lessons
Distribution and abundance of organisms is determined by interactions between living and nonliving environment; Energy flow within ecosystems; Human and natural influences on populations, biodiversity, and ecological processes.	Lesson 1: Life starts with the sun Lesson 2: Living things depend on plants Lesson 3: How energy flows in living things Lesson 4: How humans fit into natural systems Lesson 5: Humans using natural resources.

Using Science Check-up: The Teacher Dashboard

Getting Started

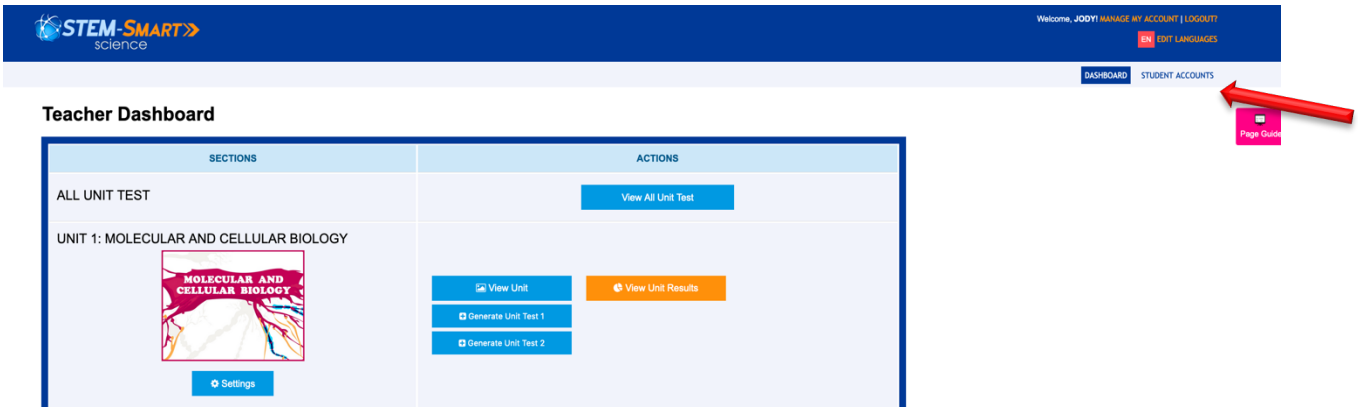
Step 1. Login at http://stem-smart.com/ngss-bio/login.php and enter the temporary username and password assigned to you. Any browser will work, but Google Chrome works best.

Step 2. After logging in, your temporary username and password will take you to your "Let's Get Started" page. On this page you may change your username and password if you wish. Be sure to write your username and password where you can find it.

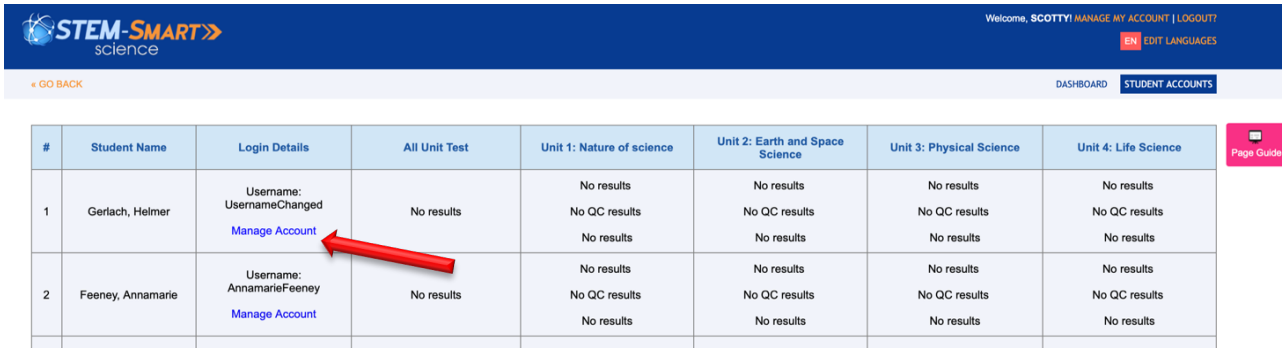


Step 3. The "next" button will take you to your *teacher dashboard* where you can control everything. Students can only see and do the units and lessons that you have "enabled" and see and take unit test and all-unit tests AFTER you have "enabled" (opened and closed) them as well. You may make changes in things enabled at any time, but students must be logged-out and log back in to see the changes you've made.

Step 4. You can access all student accounts by clicking the ***Student Accounts*** tab in the toolbar at the upper right of your teacher dashboard. The following screen shot shows list of students assigned.



Step 5. When students log in for the first time, they will be asked to update their name, username and password, but that's all optional. Clicking on ***Manage Account*** allows you to reset student usernames and passwords to be those assigned by the school or in case a student forgets his or her username and password.



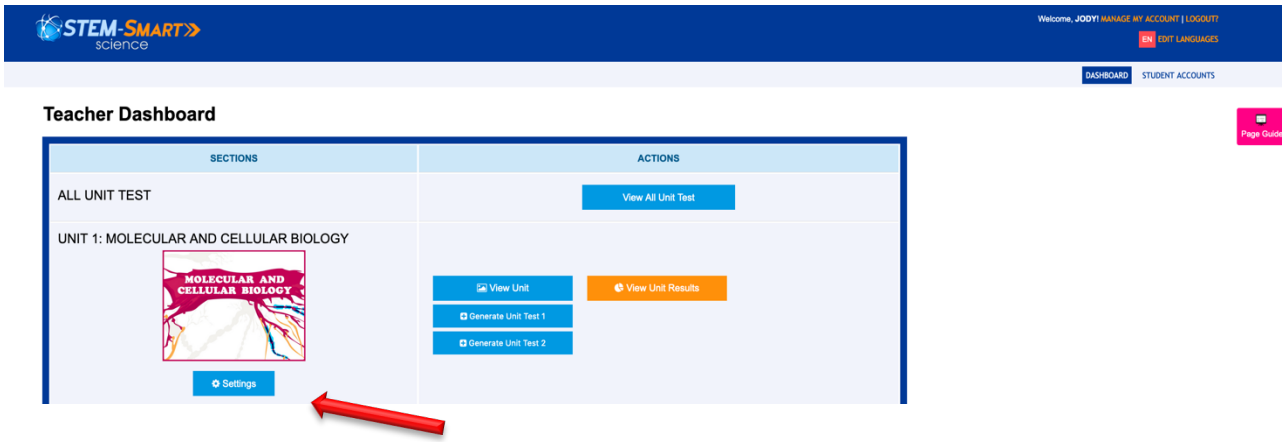
Step 6: *Science Check-up* can be read in English and Spanish. The ***Edit Language*** link on home page tool bar allows you to select the text language for the lessons. If both languages are enabled, students can toggle between English and Spanish by clicking the EN or SP button at the top right of their screen. You may also choose to enable only one of the languages as well.

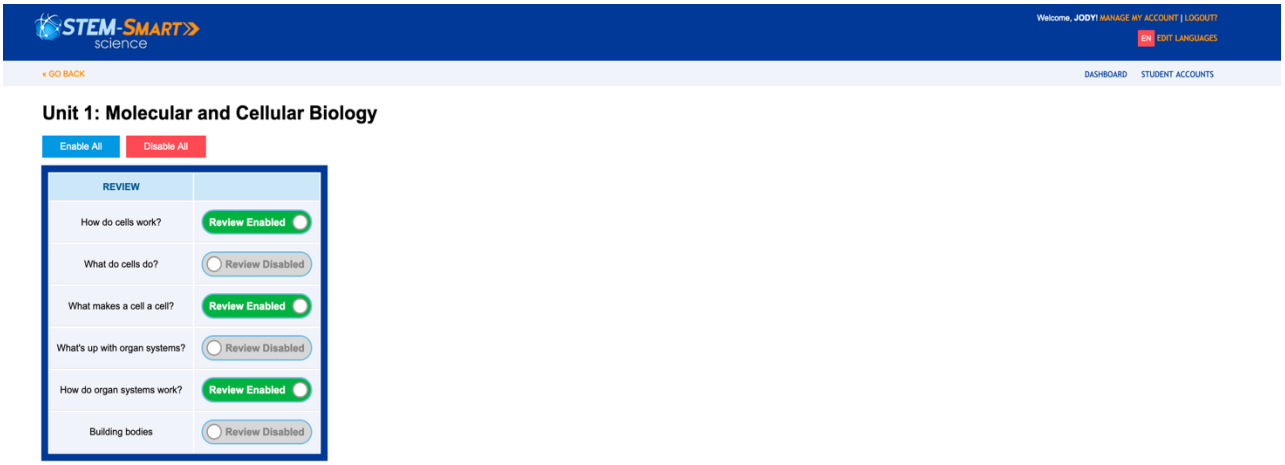
Deciding what students will see

On the home page you can open and close any or all of the *Science Check-up* units, open and close any or all of the lessons within a unit, generate individual unit and/or all-unit tests, and view student responses to the *Quick Checks i*n the lessons and to the tests that you've generated.

A. Selecting a unit and enabling or disabling lessons in a unit

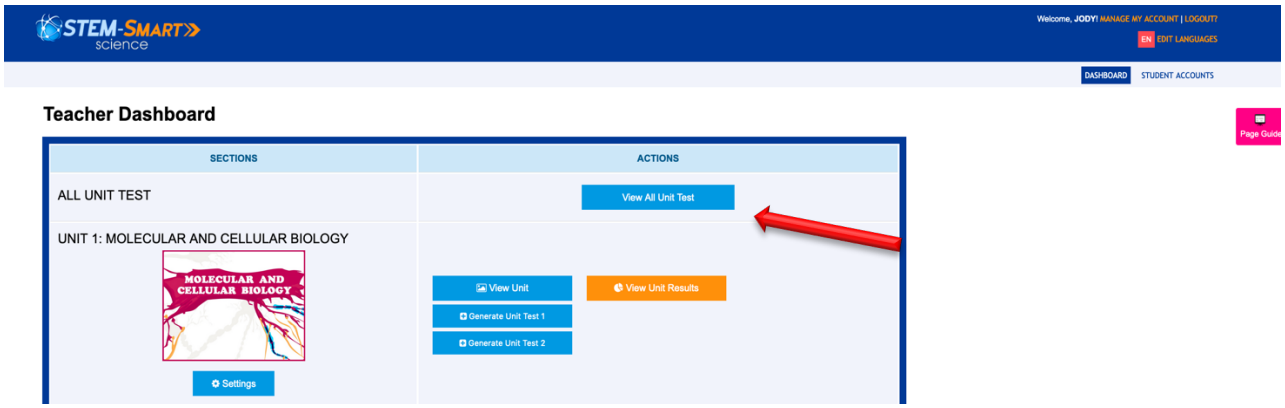
Step 1: Click the ***Settings*** button under one or more of the units. Below is what you will see for Unit 1 when the settings link is clicked. The sample screen that follows shows that three of the six lessons have been enabled and will be open for student access. The default for all lessons in all units is "Enable All."



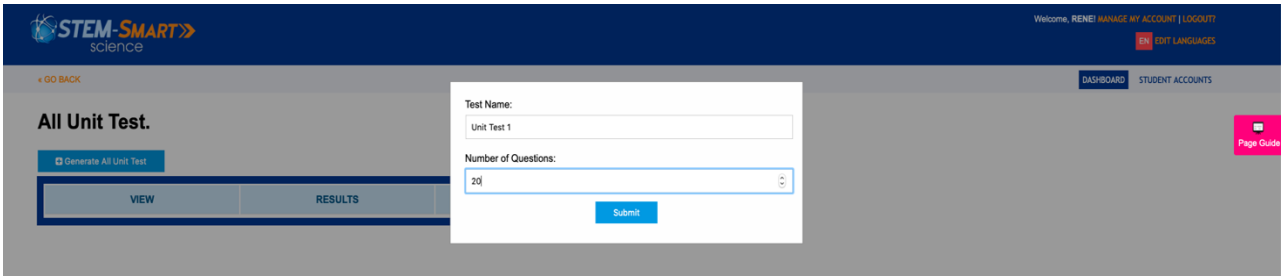


B. Generating All-Unit Tests

Step 1: Clicking on the ***View All-Unit Test*** allows you to create multiple tests of randomly selected items from the test item pools for each unit.

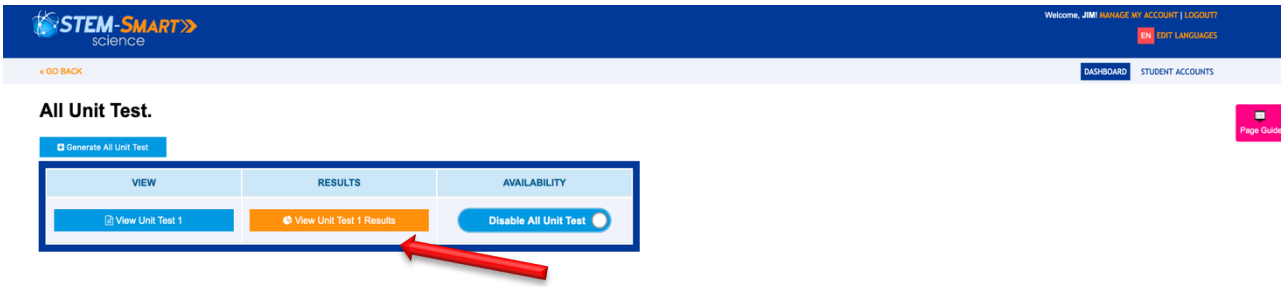


Step 2: When you click on ***Generate All Unit Test,*** you will be asked to provide a name for the test and input the number of questions for the test. The screen shot below shows the teacher generating a test of 20 items. You may generate as many different tests as you like.



*After creating an all-unit test, you have the option to *view the test*, *enable or disable the tes*t and *view the test results* after students have completed the test. Clicking the "Generate All Unit Test" again allows you to generate another version of the test with a new set of randomly selected items.

Step 3: Clicking on the ***View Test Result****s* tab shows a matrix of students' scores on the all-unit tests generated. The rows in the matrix show the percent of correct responses across all items by individual ***Student Name*** and the ***columns*** show the percent of correct responses by all student on each item.



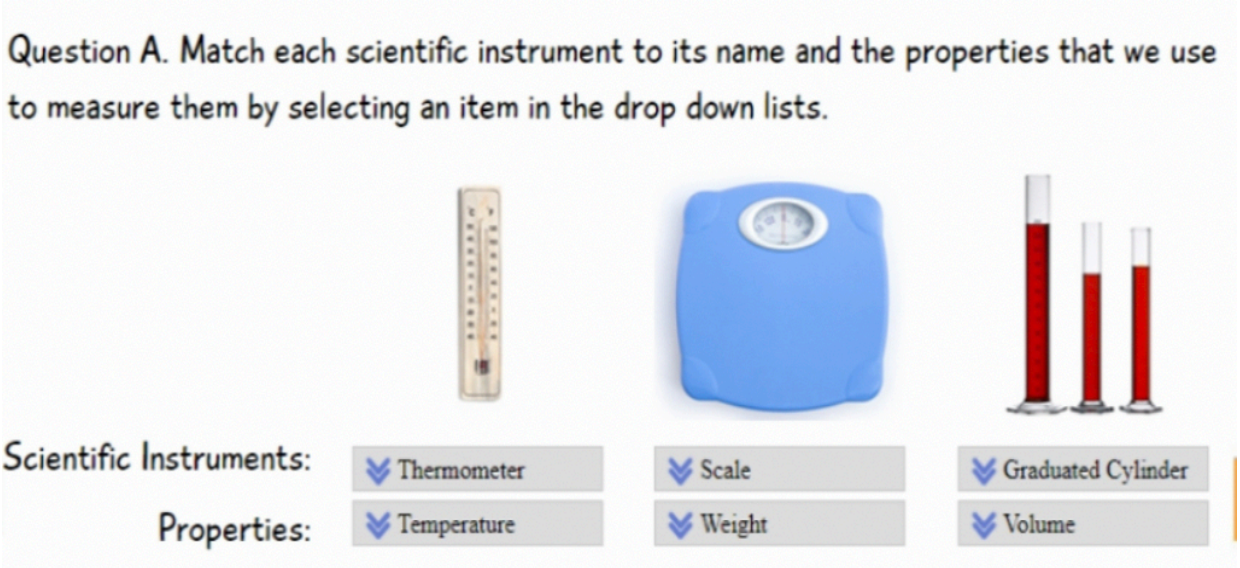
Step 4: Clicking on a ***Student Name*** shows how that student scored on each test item and the percent correct on all the test items in the "Total %" column.

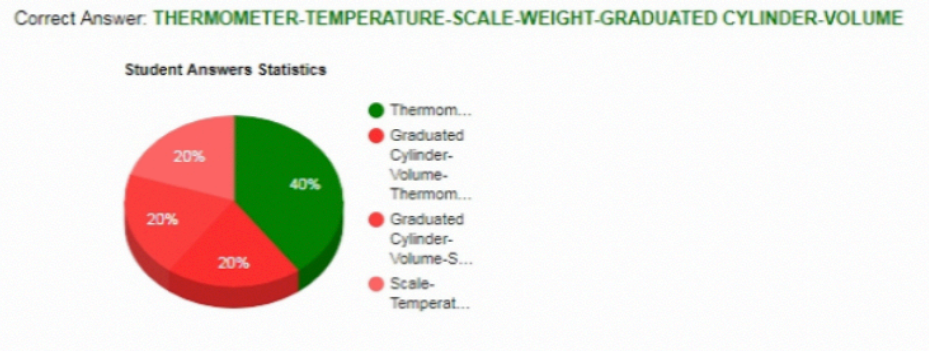
Students All Unit Test Results (Test 1)

NOTE:
- Click the column header to view the statistics for each question.
- If the table is not displaying correctly, please refresh this page.

STUDENT NAME	Q#1	Q#2	Q#3	Q#4	Q#5	Q#6	Q#7	Q#8	Q#9	Q#10	TOTAL %
Beier, Dahlia	–	–	–	–	–	–	–	–	–	–	0%
Dare, Lora	–	–	–	–	–	–	–	–	–	–	0%
Kilback, Baylee	–	–	–	–	–	–	–	–	–	–	0%
Ortiz, Astrid	–	–	–	–	–	–	–	–	–	–	0%
Ortiz, Olga	–	–	–	–	–	–	–	–	–	–	0%
Total (5)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

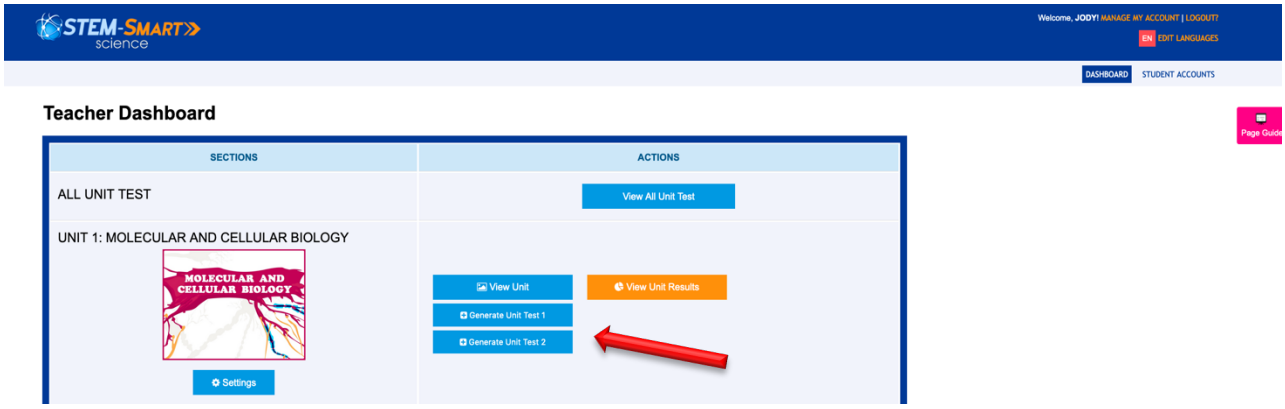
(Step 4 continued): Clicking on the item number heading (e.g., "Q#4"), shows a copy of the test item and correct response and generates a pie chart showing the distribution of students' responses to the item.



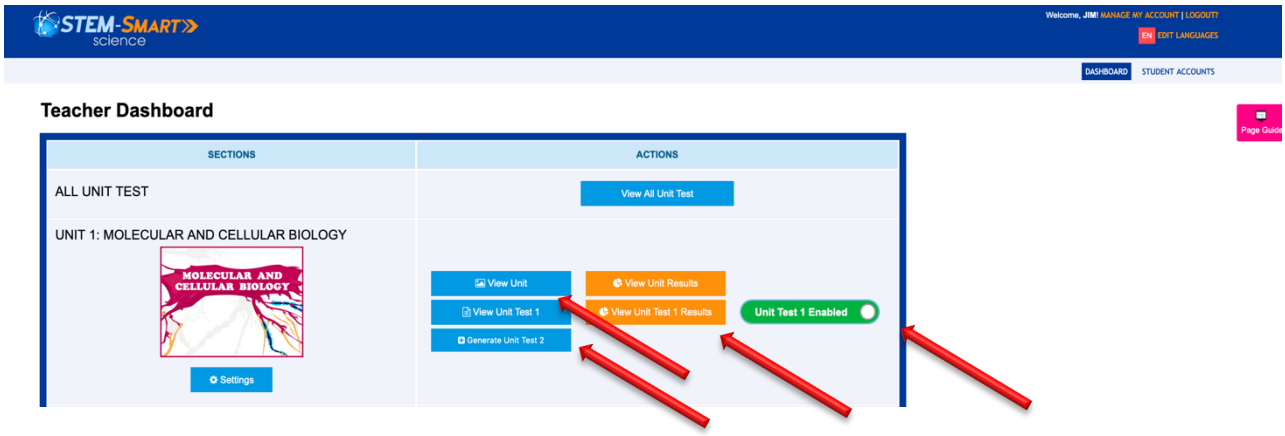


C. Managing the Units

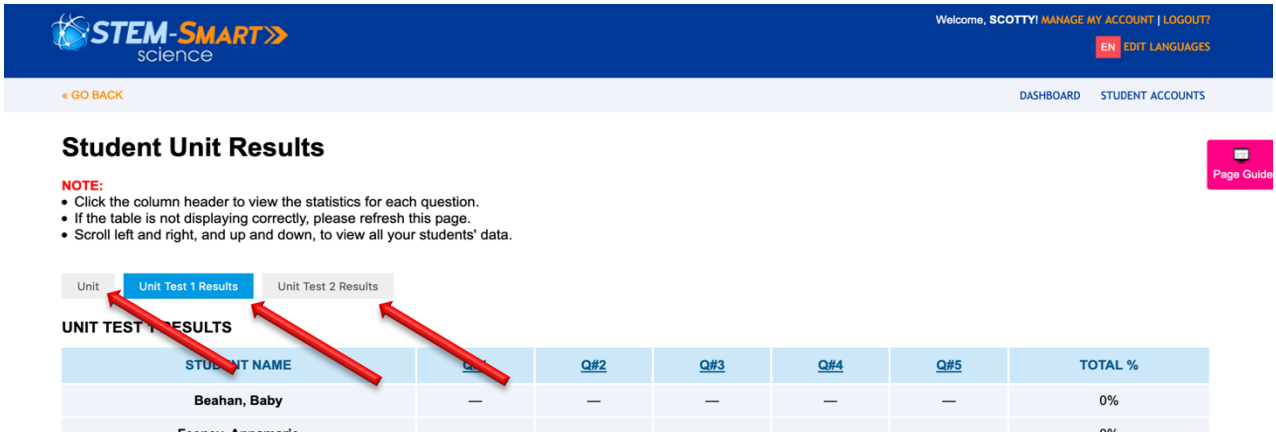
Step 1: Clicking on the ***Generate Unit Test*** tabs on your dashboard allows you to create up to ***two*** tests of randomly selected items for that unit. As with the all-unit test, you will be asked to select the number of items.



Step 2: After creating a unit test, you have the option to view the unit itself, view the unit tests, view the unit test results, and enable (or disable) the tests.

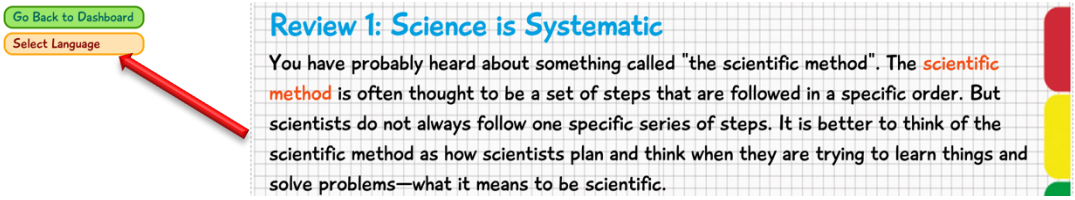


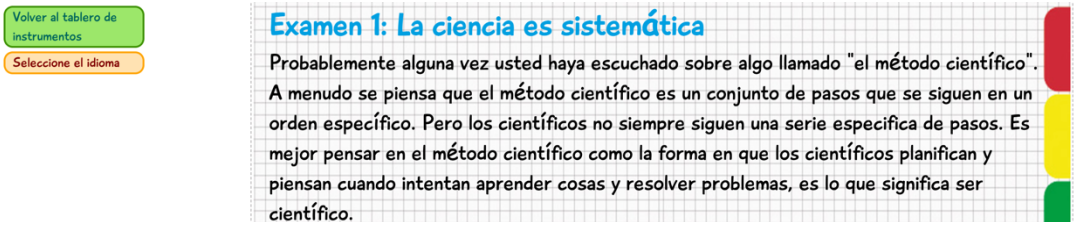
Step 3: After students have finished a unit and it has been disabled (closed), clicking on ***View Unit Results***, takes you to ***Student Unit Results*** screen that are the same as the "all unit" tests (See Section B.4 above).



D. Translation and Audio Features

*Full text translation: Students can toggle at any time between English and Spanish by clicking on the "Select Language" tab. A sample translation is shown below.

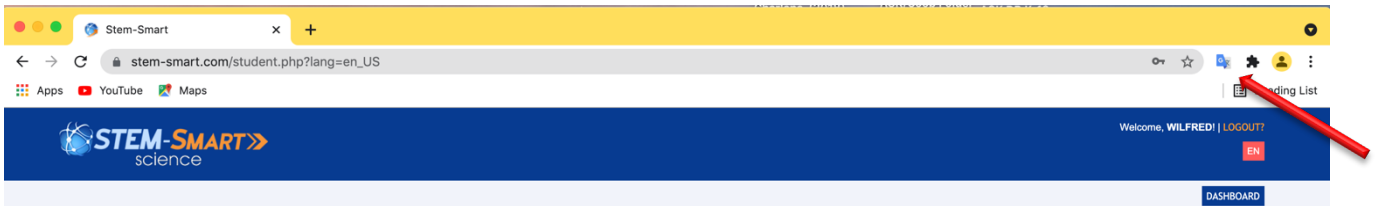




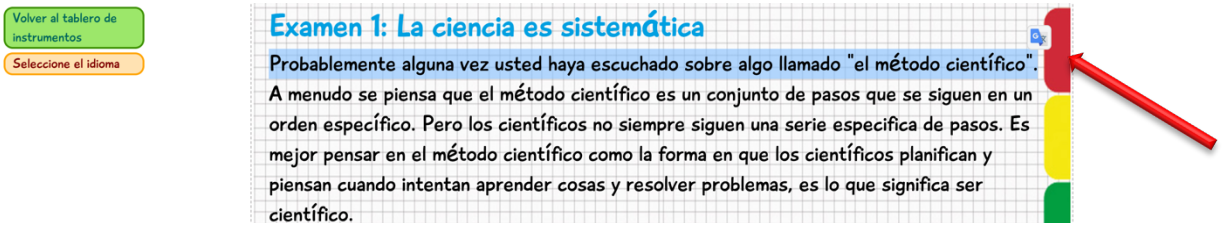
*Specific text audio and translation: If a student wants to see or hear a translation of only a single word, sentence or section of Spanish text, the "Google Translate" plugin needs to be added to their browser at:

https://chrome.google.com/webstore/detail/google-translate/aapbdbdomjkkjkaonfhkkikfgjllcleb?hl=en

After it has been added a Google Translate icon will appear in the toolbar.



Step 1: The translation can be done by highlighting a word, a sentence or a section of text on the Spanish screen. Then find and click on the Google Translate icon near the highlighted word or sentence(s). A sample Google Translate is shown below.



Step 2: Clicking on the translation icon will produce a box that contains the word or sentence(s) in English and Spanish. Clicking on the "speaker" icons in the box will produce audios of both translations.