STEM-SMART ONLINE Learning

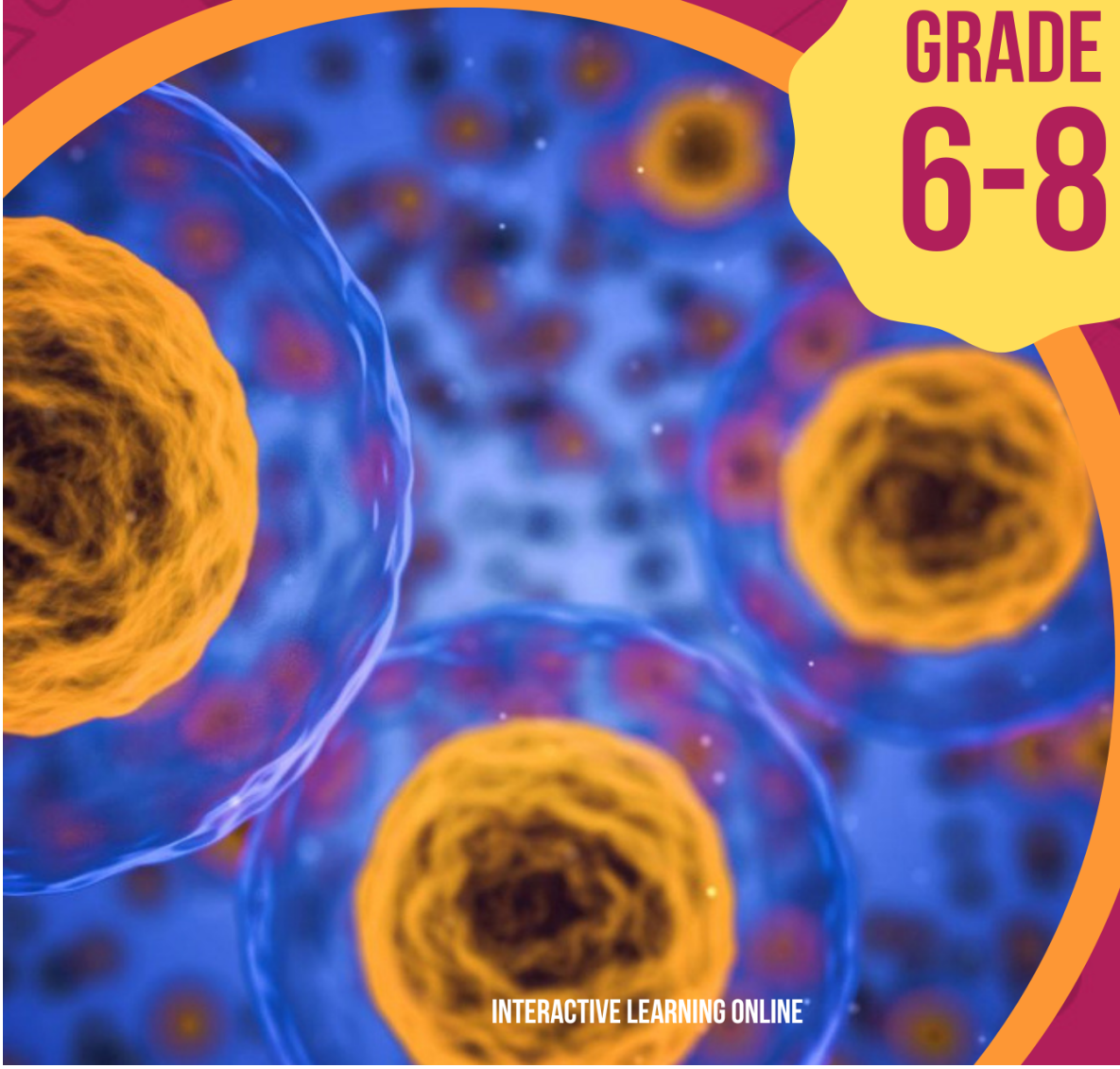
Science Check-up!

Next Generation Science Standards

English/Arabic Edition

Teacher's Guide

GRADE 6-8



INTERACTIVE LEARNING ONLINE

Science Check-up

Next Generation Science Standards

Grade 6-8

Teacher's Guide

English/Arabic Edition

STEM-Smart

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Science Check-up

English/Arabic Edition

Grades 6-8

About *Science Check-up*

**Science Check-up:* English/Arabic Edition—Grades 6-8 is an online supplement that focuses on the *Next Generation Science Standards* (NGSS) that upper elementary students encounter in their Jordanian 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 Arabic with a simple click of the *EN*/AR language buttons in the tool bar. Second language learners can use a built-in translation function to see and hear all text in both Arabic and English, enhancing both their science content knowledge and their language skills.

How to use *Science Check-up*

*The science content and questions in the *Science Check-up* reviews are intended to deepen understanding of the content and to give students that extra boost in confidence that they have learned what is needed to do their best on tests. Eighth grade teachers will find *Science Check-up* an especially useful tool for helping students prepare for the tests given at the end of Grade 8, but **6**th and 7th grade teachers can also use selected reviews to capitalize on the power and fun of *Science Check-up* and to lessen the burden on 8th grade teachers to prepare for the tests at the end of fifth grade. The best way to use *Science Check-up* is for the Grade 6-8 teachers to plan together and select reviews that align with the topics they are teaching at their grade. 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/ Grade 6-8 NGSS Alignment

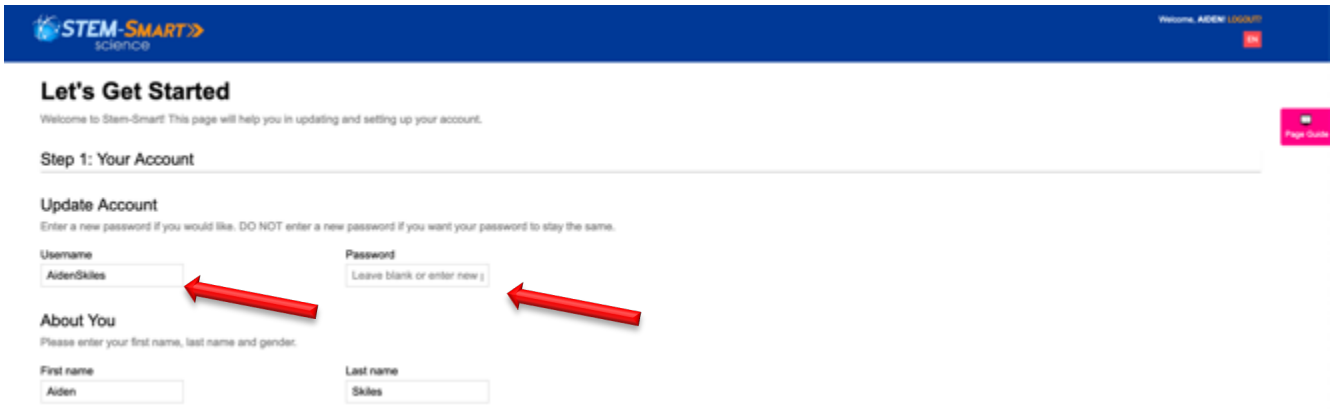
Category	Suggested Reviews
Unit 1: Nature of Science	
Analyzing data; Collecting & organizing data; Defining a testable problem; Importance of a control group; Distinguishing between observations and opinions; Importance of observations; Importance of repeated trials; Importance of replication	Review 1: Practices of Science Review 2: Scientific Investigations Review 3: Measurement & Analysis Review 4: Claims, Evidence& Reasoning Review 5: Let's argue about it!
Unit 2: Earth & Space Science	
Earth's revolutions; Earth's rotation; Classifying rocks; Mineral properties; Streak color; Renewable vs nonrenewable resources; Weathering-water; Components of a galaxy, Start brightness and distance; Distinguishing between the Sun and planets; Earth's position; Planer characteristics; Roles of the ocean; Water cycle; Evaporation; Climate zone-polar; Weather-humidity	Review 1: Our solar system Review 2: Space and the universe Review 3: Energy from the Sun. Review 4: Natural Resources Review 5: Rock Cycle Review 6: Weathering and Erosion Review 7: Water – Solid, Liquid, or Gas Review 8: Water Cycles! Review 9: How Weather Works
Unit 3: Physical Science	
Comparing objects—temperature; Comparing objects—volume; Dissolving--surface area; Separating mixtures—shape; Changes to water—melting; Chemical change—temperature; How light travels; Mechanical energy; Pitch; Energy causing a change; Forces—friction; Forces; gravity; Speed; Unbalanced forces; Electric circuits; Insulators-electric	Review 1: Different matter forms Review 2: Temperature matters Review 3: When matter is mixed Review 4: Physical and chemical changes Review 5: What is energy anyway? Review 6: Two basic forms of energy Review 7: All kinds of energy Review 8: Balanced forces are boring Review 9: Net forces make things happen Review 10: How much force is needed? Review 11: Electric circuits are simple Review 12: Don't mess with electricity
Unit 4: Life Science	
Plant structures-roots; Plants responding to gravity; Seed dispersal; Insect metamorphosis—complete; Energy flow through a food chain; How animals obtain energy; Organ function—skin; Animal classification-reptiles; Comparing plant and animal structures; Plant classification--spore producing plants; Characteristics--environmentally influenced Impact on environment--animals	Review 1: How do body systems work? Review 2: How animals behave. Review 3: What are plants up to anyway? Review 4: Solar power for life. Review 5: How do living things change? Review 6: What are some animal adaptations? Review 7: How do life forms change? Review 8: Habitats? Ecosystems? What's the deal? Review 9: What makes a biome? Review 10: How do living things interact?

Using Science Check-up: The Teacher Dashboard

Getting Started

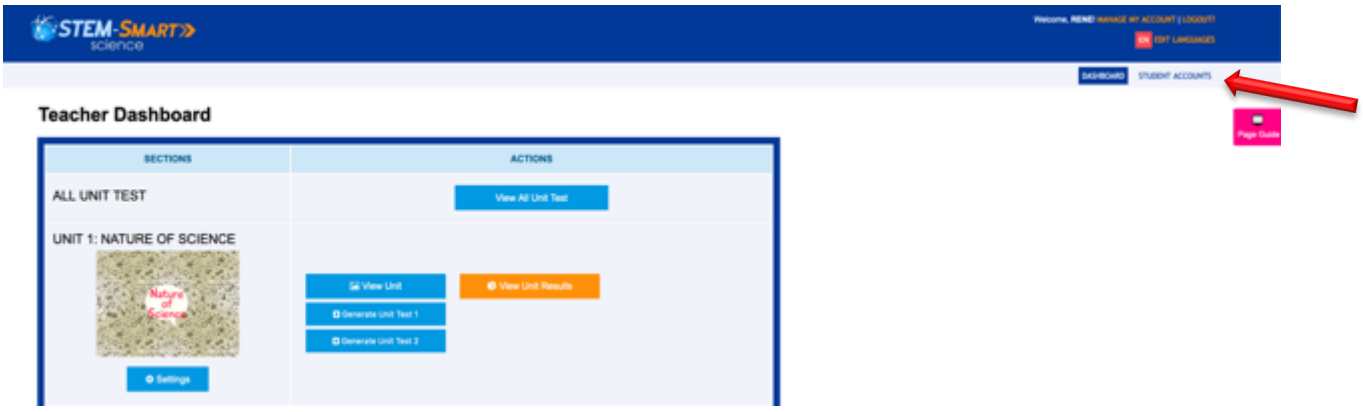
Step 1. Login at http://en-ar.stem-smart.com/ngss-m/login.php and enter the temporary username and password assigned to you. Any browser will work, but Google Chrome works best.

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.

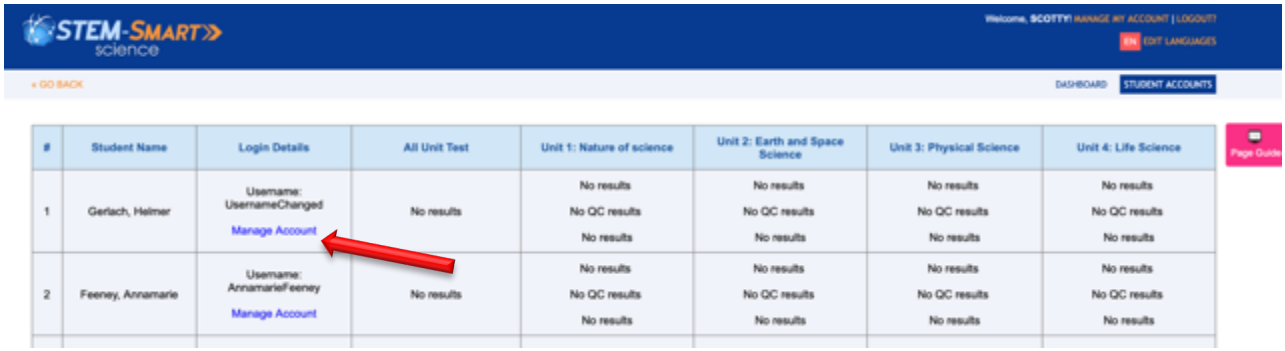


Step 3. The "next" button will take you to your *teacher dashboard* where you can control everything. Students can only see and do the units and reviews that you have "enabled" and see and take unit test and all-unit tests AFTER you have "enabled" (opened and closed) them as well. You may make changes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

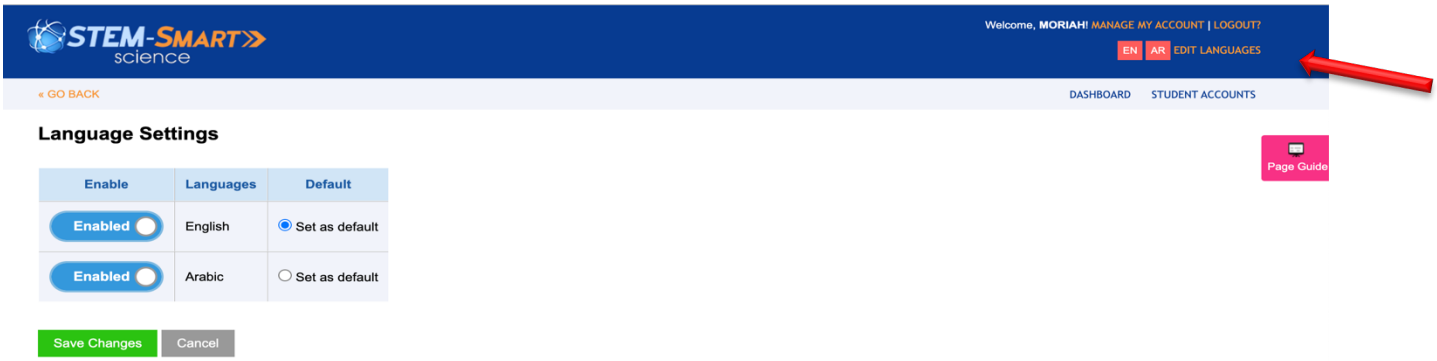
Step 4. You can access all student accounts by clicking the ***Student Accounts*** tab in the toolbar at the upper right of your teacher dashboard. The following screen shot shows list of students assigned.



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: STEM-Smart 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 reviews. 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.

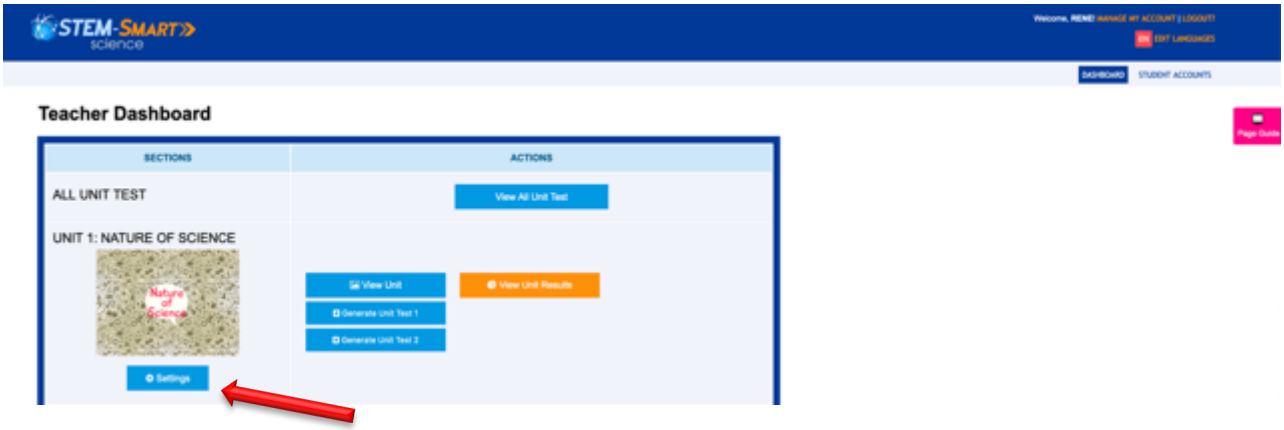


Deciding what students will see

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

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

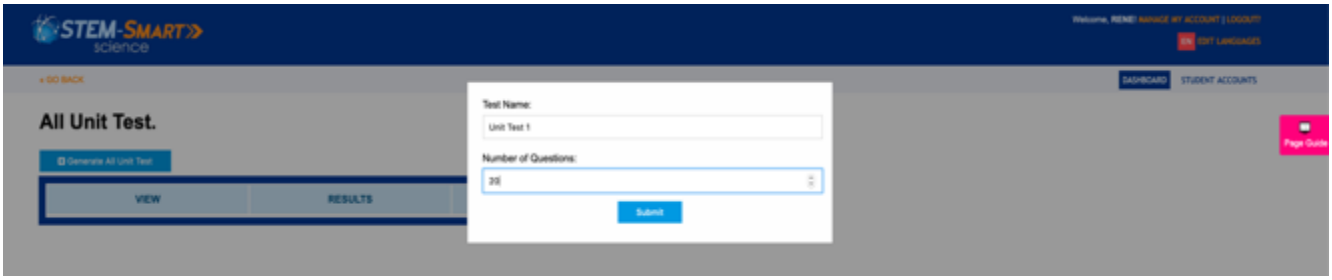
Step 1: Click the ***Settings*** button under one or more of the units. Below is what you will see for Unit 1 when the settings link is clicked. The sample screen that follows shows that two of the three reviews have been enabled and will be open for student access. The default for all reviews in all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



B. Generating All-Unit Tests

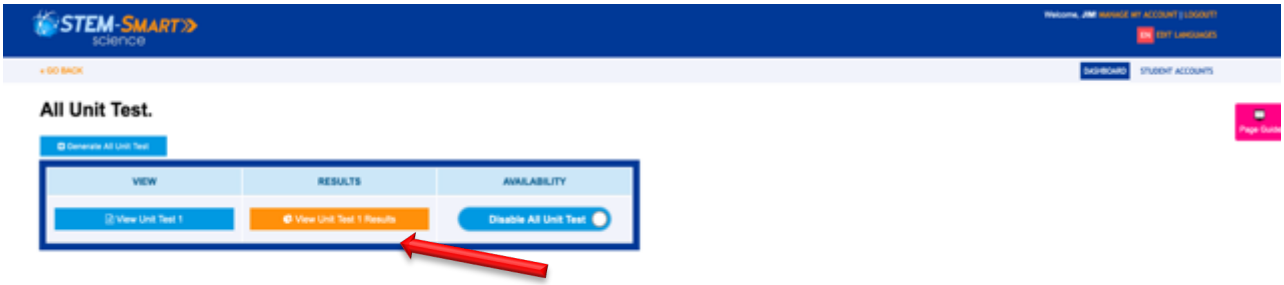
Step 1: Clicking on the ***View All-Unit Test*** allows you to create multiple tests of randomly selected items from the test item pools for each unit.

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 all unit tests as you like.

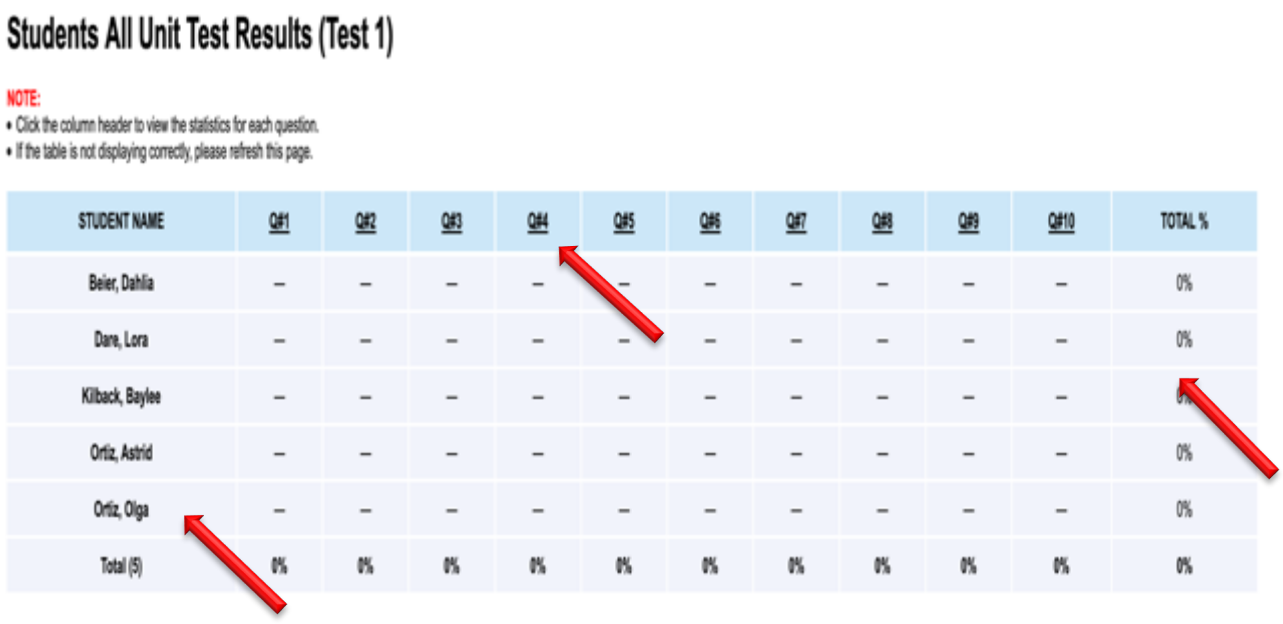


*After creating an all-unit test, you have the option to *view the test*, *enable or disable the tes*t and *view the test results* after students have completed the test. Clicking the "Generate All Unit Test" again allows you to generate another version of the test with a new set of randomly selected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

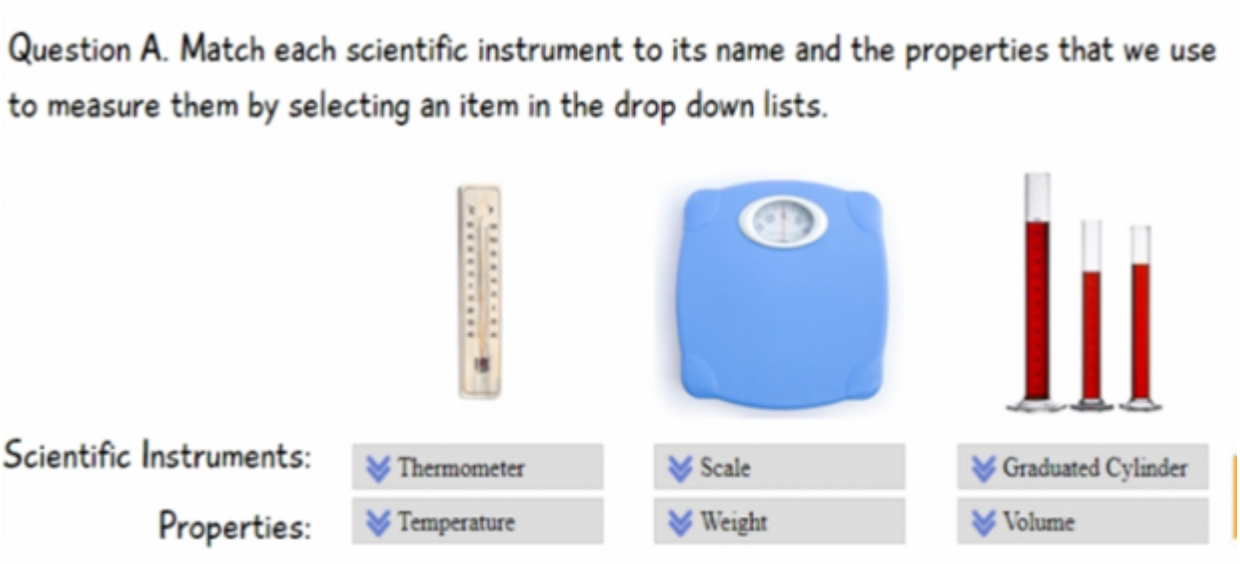


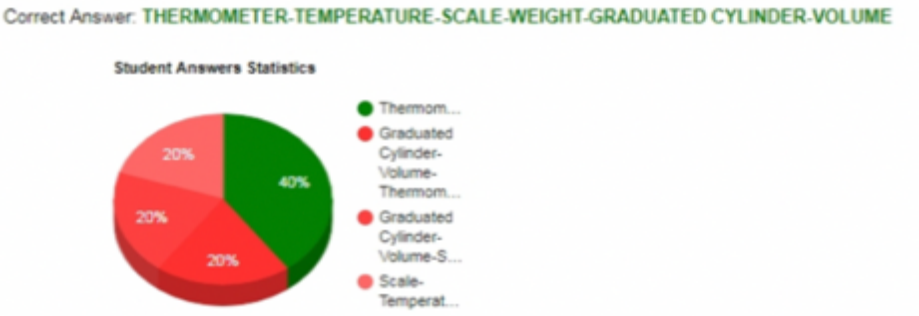
Students All Unit Test Results (Test 1)

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%
Dane, Lora	–	–	–	–	–	–	–	–	–	–	0%
Kilback, Baylee	–	–	–	–	–	–	–	–	–	–	0%
Ortiz, Astrid	–	–	–	–	–	–	–	–	–	–	0%
Ortiz, Olga	–	–	–	–	–	–	–	–	–	–	0%
Total (5)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

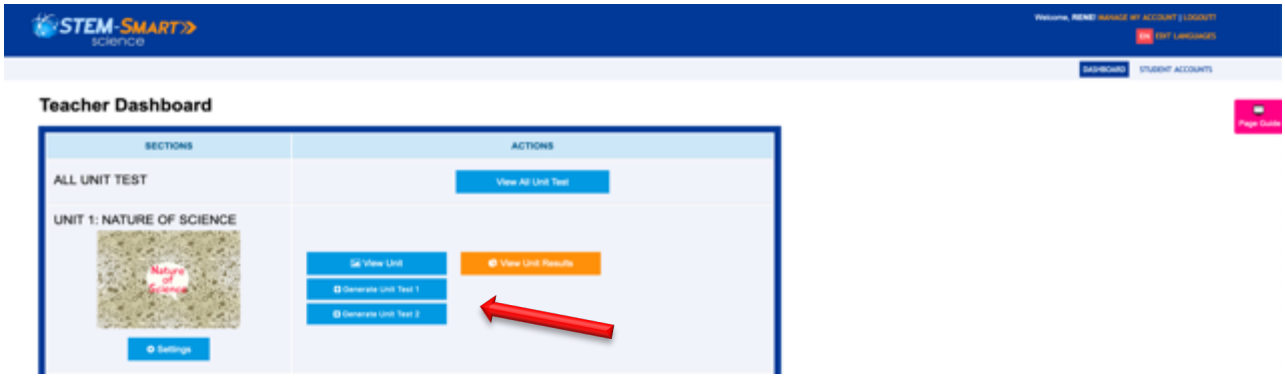
(Step 4 continued): Clicking on the item number heading (e.g., "Q#4"), shows a copy of the test item and correct response and generates a pie chart showing the distribution of students' responses to the item.



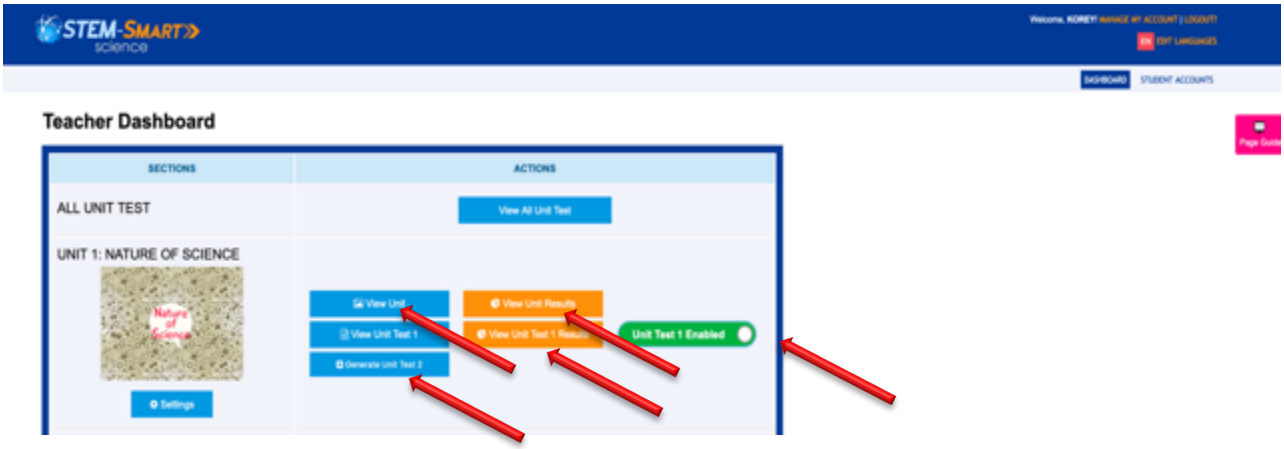


C. Managing the Units

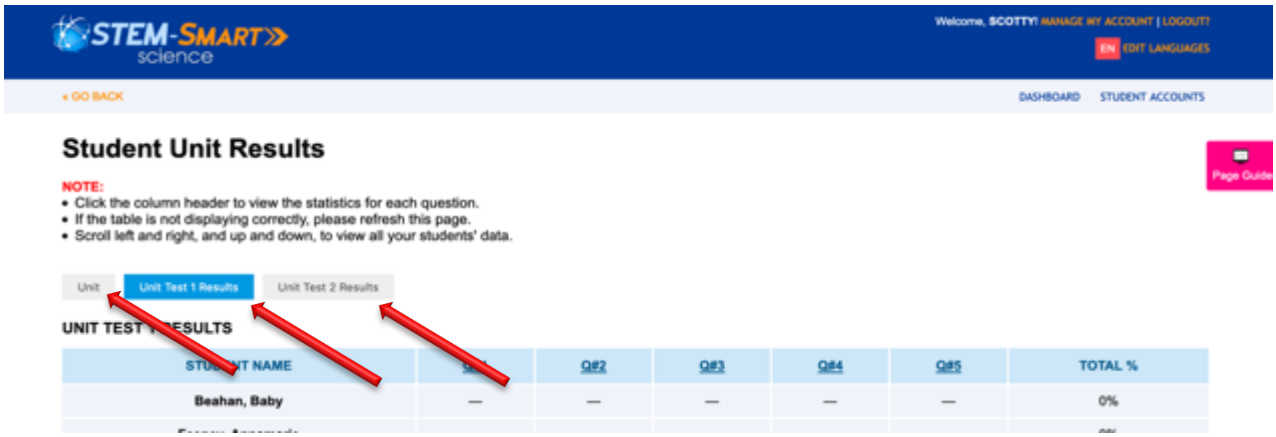
Step 1: Clicking on the ***Generate Unit Test*** tabs on your dashboard allows you to create up to ***two*** tests of randomly selected items for that unit. As with the all-unit test, you will be asked to select the number of items.



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.

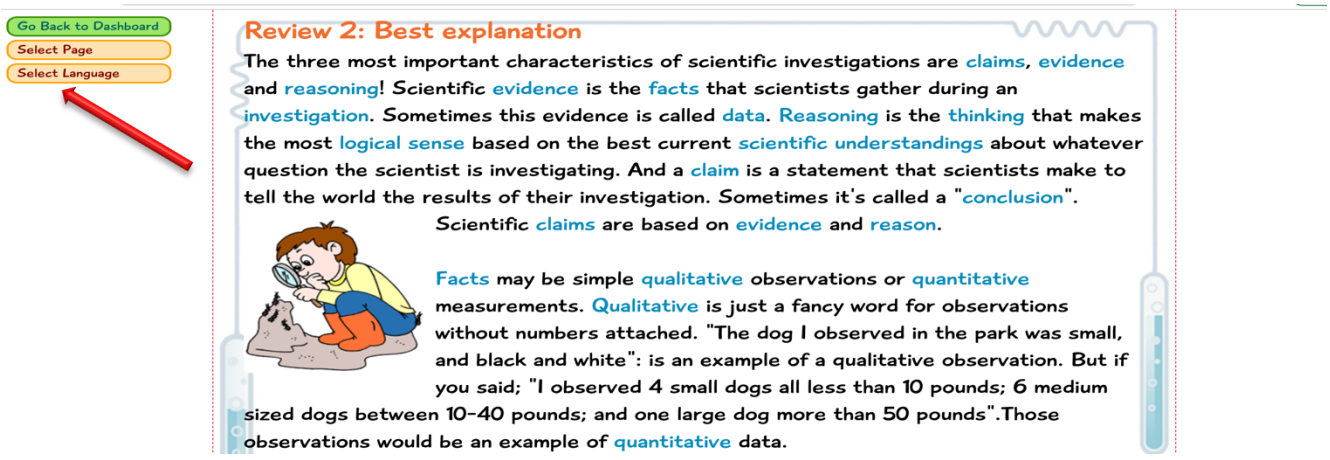


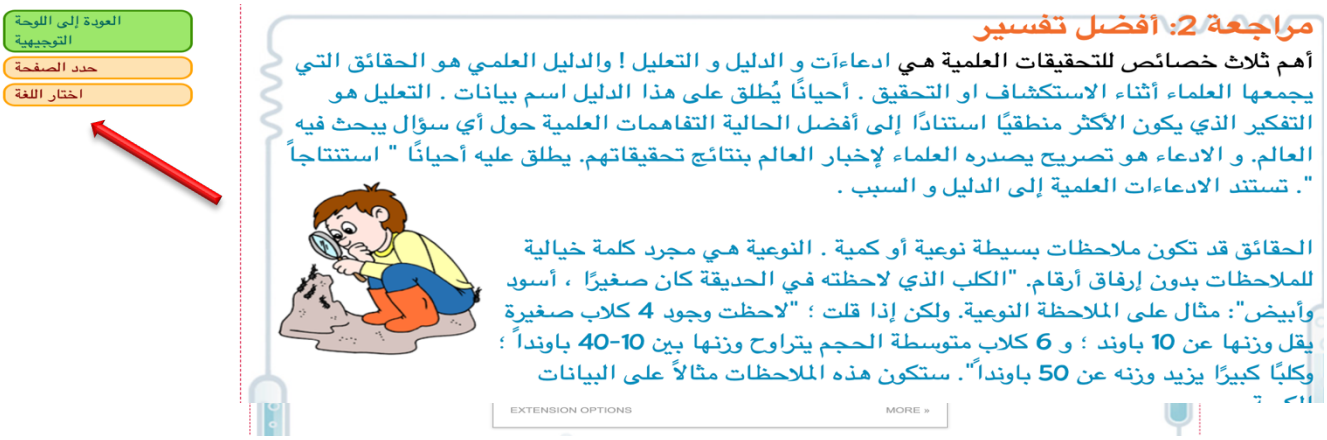
Step 3: After students have finished a unit and it has been disabled (closed), clicking on ***View Unit Results***, takes you to ***Student Unit Results*** screen that are the same as the "all unit" tests (See Section B.4 above).



D. Translation and Audio Features

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

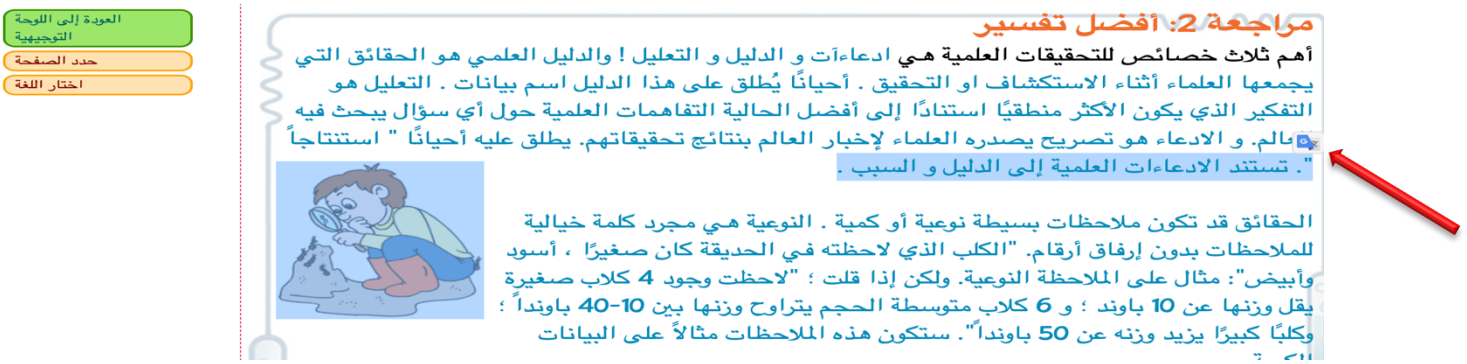




*Specific text audio and translation: If students want to see or hear a translation of a word, a sentence or even a full page of Arabic text, they can use “Google Translate” which is on the Chrome browser. If Chrome is not being use, the “Google Translate” plugin needs to be added to their browser at:

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

Step 1: After highlighting a word or sentence, the Google Translate icon will appear near the highlighted word or sentence. 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 Arabic. Clicking on the “speaker” icons in the box will produce audios of both translations.