



Science Check-up!

Next Generation Science Standards

English/Spanish Edition

Teacher's Guide

GRADE
6-8

INTERACTIVE LEARNING ONLINE



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STEM-Smart

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Next Generation Science Standards

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About Science Check-up

* *Science Check-up* is an online product that focuses on the big ideas outlined in the Grade 6-8 *Next Generation Science Standards* (NGSS that upper elementary students encounter in their 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*

*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 6th 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 eighth 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

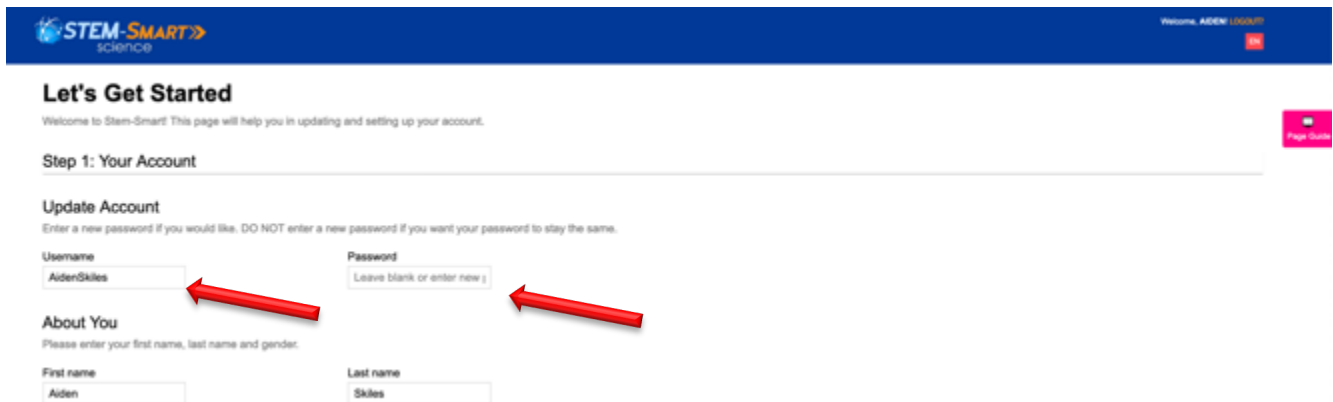
Unit 1: Nature of Science	Suggested Reviews
Evaluating new evidence; Logical reasoning; Comparing methods and results; Models; Using technology; Scientific theory; Controlling experimental variables; Defending conclusions; ; Evaluating a procedure; Making predictions; Outcome variables	Review 1: Science is systematic Review 2: Best explanation Review 3: Science theories and laws
Unit 2: Earth & Space Science	
Differentiating between weather and climate; Weather patterns; Heat transfer—convection; Chemical weathering; Rock cycle; Law of superposition; Earthquakes; Mountain building; Relative distance; Properties of the Sun; Planetary motion; Properties of planets; Solar system models; Eclipses; Moon phases	Review 1: Weather & climate—Not the same Review 2: How heat energy moves Review 3: Dynamic Earth Review 4: Rock cycle Review 5: The universe and us Review 6: Properties of the sun Review 7: Phases of the moon
Unit 3: Physical Science	
Friction; Gravitational force; Analyzing position-time graphs; Unbalanced forces; Electromagnetic spectrum; Sound waves Convert potential energy to kinetic energy; Energy transformations; Heat and phase changes; Heat flow; Magnetic properties; Atomic theory; Compounds; pH; Distinguishing between physical and chemical changes	Review 1: What is matter? Review 2: Mass and weight-not the same Review 3: Heating and cooling Review 4: Is it moving or not? Review 5: It takes a force Review 6: Gravity in action Review 7: Magnets not magic Review 8: Energy and its forms Review 9: Sound energy Review 10: Light energy Review 11: How light behaves
Unit 4: Life Science	
Structural organization; Cellular processes—elimination of waste; Cell Wall; Nervous system; Reproductive system; Classification of organisms; Theory of evolution-fossil evidence; Theory of evolution-genetic; variation; Chromosomes; Genotypes; Comparing relationships; Food webs; Limiting factor; shelter, nesting sites and/or space; Carbon cycle; Photosynthesis—products	Review 1: Cellular life Review 2: Body systems Review 3: Inherited traits Review 4: Predicting traits Review 5: Heredity Review 6: DNA and heredity Review 7: Selection Review 8: Natural selection Review 9: Adaptation Review 10: Life evolves

Using Science Check-up: The Teacher Dashboard

Getting Started

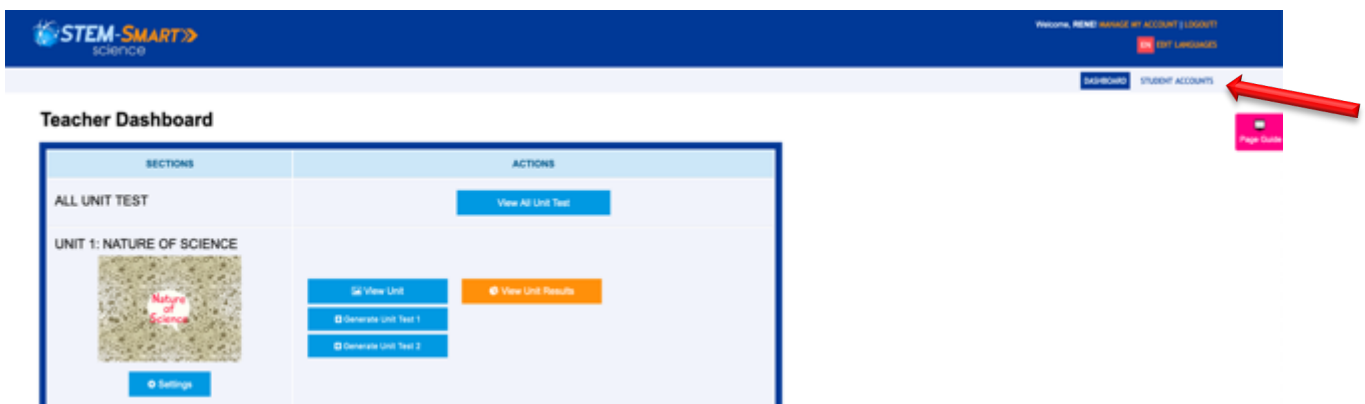
Step 1. Login at <http://stem-smart.com/ngss-m/login.php> and enter the temporary username and password assigned to you. Any browser will work, but STEM-Smart is designed to work specifically on Chrome to best utilize all the STEM-Smart language features.

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.

#	Student Name	Login Details	All Unit Test	Unit 1: Nature of science	Unit 2: Earth and Space Science	Unit 3: Physical Science	Unit 4: Life Science
1	Getlach, Helmer	Username: UsernameChanged Manage Account	No results	No results No QC results	No results No QC results	No results No QC results	No results No QC results
2	Feeney, Annamaria	Username: AnnamariaFeeney Manage Account		No results No QC results	No results No QC results	No results No QC results	No results No QC results

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* in the reviews and to the tests that you’ve generated.

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

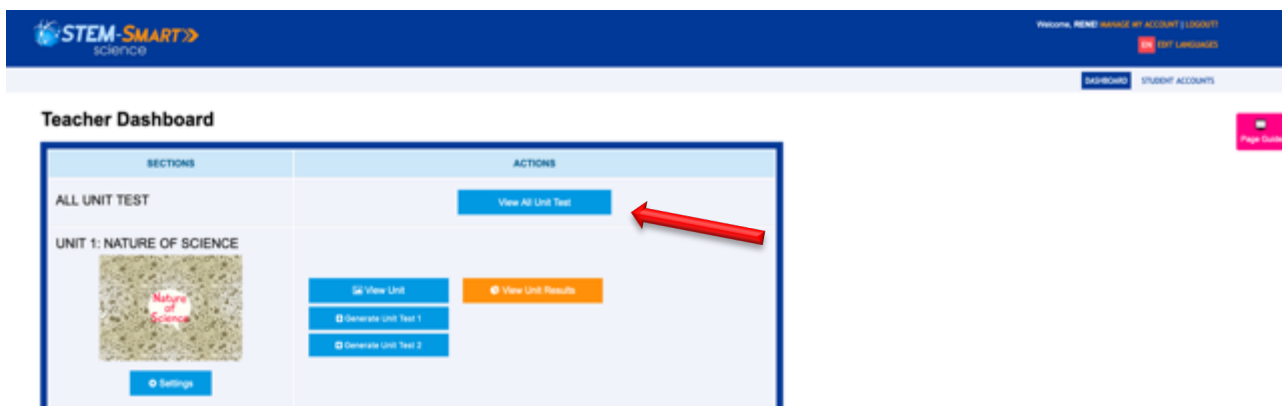
Step 1: Click the **Settings** button under one or more of the units. Below is what you will see for Unit 1 when the settings link is clicked. The sample screen that follows shows that two of the three reviews have been enabled and will be open for student access. The default for all reviews in all units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



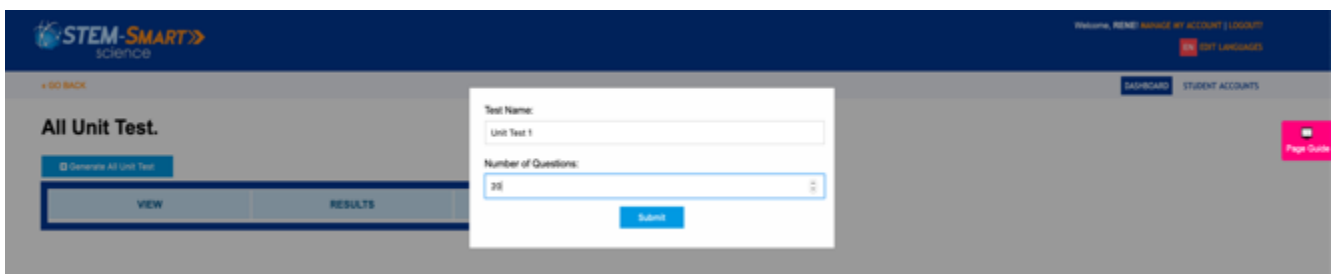


B. Generating All-Unit Tests

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.

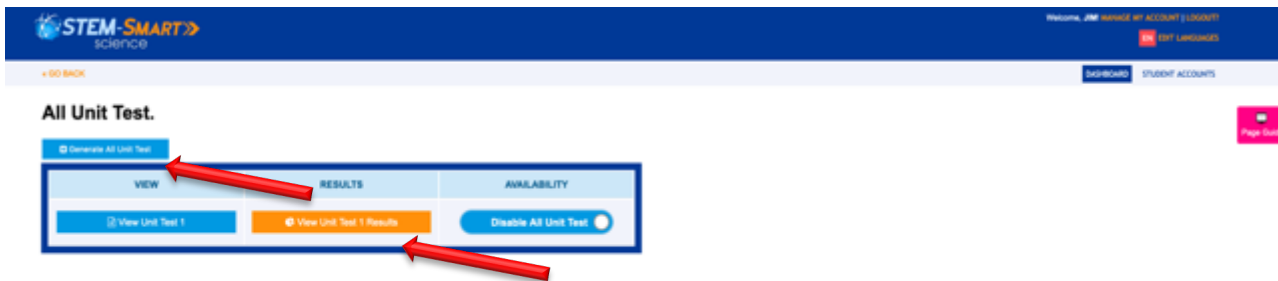


Step 2: When you click on **View All Unit Test**, you will be asked to provide a name for the test and input the number of questions for the test. The screen shot below shows the teacher generating a test of 20 items. You may generate as many different tests as you like.



*After creating an all-unit test, you have the option to *view the test, enable or disable the test* 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 Results** 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.




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. 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.

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: Clicking on the item number heading (e.g., "Q#1"), shows a copy of the test item and correct response and generates a pie chart showing the distribution of students' responses to the item.


Question #1

Use the pull down menu to indicate whether the object is experiencing balanced or unbalanced forces.




A ferry slows down as it approaches a dock.

Unbalanced




A basketball arcs towards the hoop.

Unbalanced



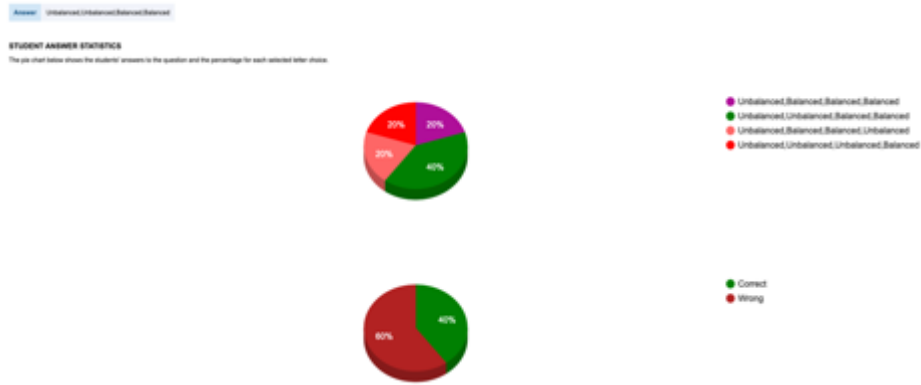
A hockey puck slides across the ice at a constant speed.

Balanced



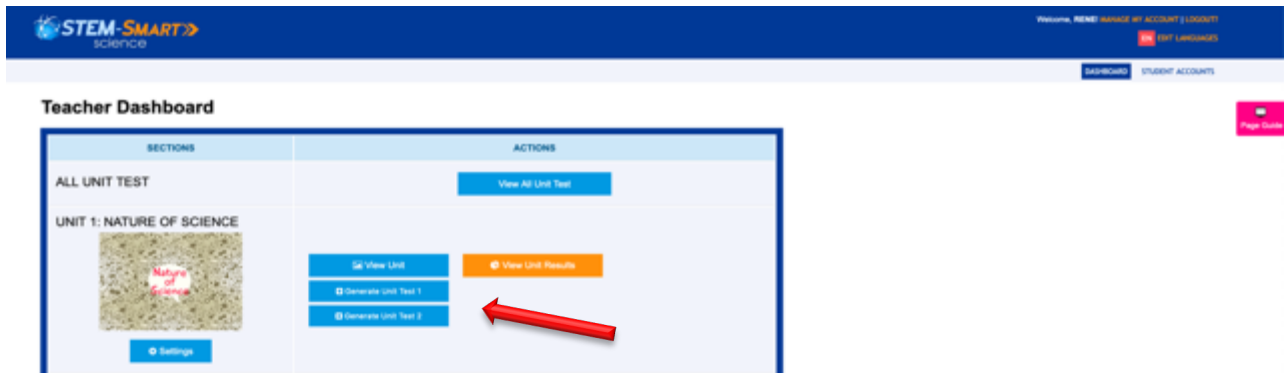
A red rock sits motionless atop some other rocks.

Balanced



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.

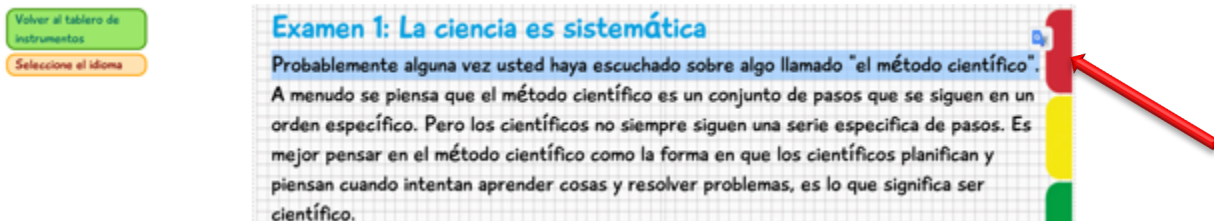
***Specific text audio and translation:** If a student wants to see or hear a translation of only a single word, sentence or section of Spanish text, the “Google Translate” plugin needs to be added to their browser at:

<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.

