



Science Check-up!

MISSOURI

English/Spanish Edition

Teacher's Guide

GRADE
6-8

INTERACTIVE LEARNING ONLINE



Science Check-up

Missouri

Grade 6-8

Teacher's Guide

English/Spanish Edition

STEM-Smart

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Science Check-up: Missouri

Grade 6-8

About Science Check-up

* *Science Check-up: Missouri* Grade 6-8 is an online supplement that focuses on the big ideas outlined in the Grade 6-8 *Missouri Blueprint for Science (MBS)* 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 MBS Alignment

Essential Standards	Suggested Reviews
Unit 1: Matter, Energy, Force and Motion	
<p>(6.P.1) Properties of waves in earthquake, light and sound; (6.P.3) Structure, classification and properties of matter; (6.P.3) Energy transfer and interactions; (7.P.1) Force and motion; (7.P.2) Energy forms and changes; (8.P.1) Changes in matter; (8.P.2) Obtaining and managing energy resources</p>	<p>Review 1: Structure of matter Review 2: Special properties of matter Review 3: Chemical and physical changes Review 4: What is motion? Review 5: Speed, velocity and acceleration Review 6: It takes a force! Review 7: How much force is needed? Review 8: Forces always come in pairs Review 9: Two basic kinds of energy Review 10: Energy can change forms Review 11: Heating and cooling Review 12: Energy and its forms Review 13: Light waves are special Review 14: Sound energy Review 15: How light behaves</p>
Unit 2: Earth History and Processes and the Universe	
<p>(6.E.1) Earth/moon/sun systems and motions in the universe; (6.E.2) Earth structures, systems and interactions; (7.E.1) Cycles in Earth's atmosphere; (8.E.1) Earth's water systems; (8.F.2/8.L.4) Changes in Earth's structure and life forms</p>	<p>Review 1: The nature of the universe Review 2: Earth in motion Review 3: The moon and us Review 4: About our sun Review 5: Our dynamic Earth Review 6: Rock cycle Review 7: Our changing landscape Review 8: Water is critical Review 9: How weather works Review 10: Weather & climate: not the same</p>
Unit 3: Living Systems	
<p>(6.L.1) Plant processes; (7.L.1) Living organism processes, structure and functions; (8.L.1) Diseases; (8.L.2) Biotechnology; (8.L.3/8.L.5) Energy flow and interactions in ecosystems</p>	<p>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 Review 11: Plant life Review 12: Biodiversity Review 13: Interactions</p>

Using Science Check-up: The Teacher Dashboard

Getting Started

Step 1. Login at <http://stem-smart.com/mo-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.

Let's Get Started
Welcome to Stem-Smart! This page will help you in updating and setting up your account.

Step 1: Your Account

Update Account
Enter a new password if you would like. DO NOT enter a new password if you want your password to stay the same.

Username: AdenSkiles
Password: [Leave blank or enter new]

About You
Please enter your first name, last name and password.

First name: Aden
Last name: Skiles

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.

Teacher Dashboard

SECTIONS

ALL UNIT TEST

UNIT 1: MATTER, ENERGY, FORCE AND MOTION

Unit 1: Matter, Energy, Force and Motion

Settings

ACTIONS

Generate All-Unit Tests

View Unit

Generate Unit Test 1

Generate Unit Test 2

View Unit Results

DASHBOARD | **STUDENT ACCOUNTS**

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	Gerlach, Helmer	Username: UsernameChanged Manage Account	No results	No results No QC results No results	No results No QC results No results	No results No QC results No results	No results No QC results No results
2	Feeney, Annamaria	Username: AnnamariaFeeney Manage Account	No results	No results No QC results No results	No results No QC results No results	No results No QC results No results	No results No QC results No 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.

Language Settings

Enable	Languages	Default
<input checked="" type="checkbox"/> Enabled	English	<input checked="" type="radio"/> Set as default
<input type="checkbox"/> Disabled	Spanish	<input type="radio"/> Set as default

[Save Changes](#) [Cancel](#)

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 first unit reviews have been enabled and will be open for student access. The default for all reviews in all units is “Disable All.”

Teacher Dashboard

SECTIONS	ACTIONS
<p>ALL UNIT TEST</p> <p>UNIT 1: MATTER, ENERGY, FORCE AND MOTION</p> <p>Settings</p>	<p>Generate All-Unit Tests</p> <p>View Unit</p> <p>Generate Unit Test 1</p> <p>Generate Unit Test 2</p> <p>View Unit Results</p>

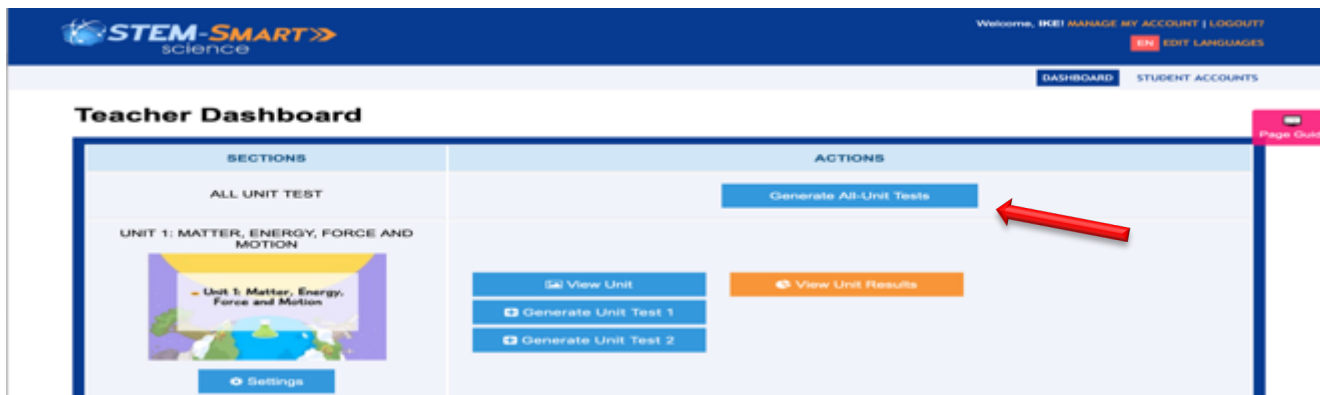
UNIT 1: Physical Science

Enable All Disable All

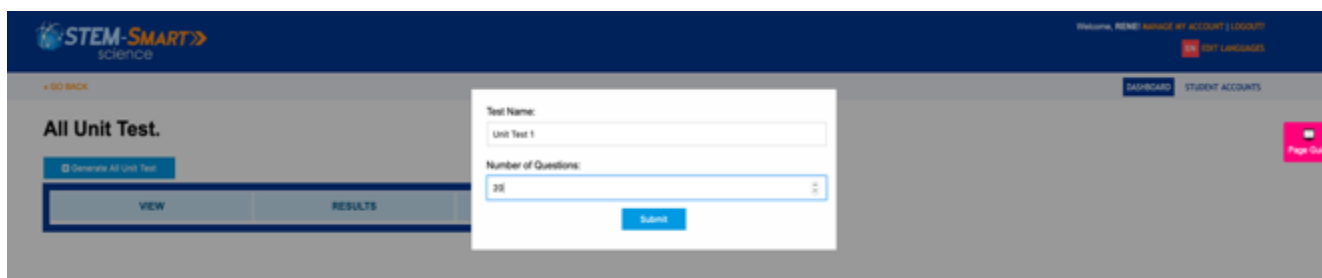
REVIEW	
Structure of matter	Review Enabled <input checked="" type="checkbox"/>
Special properties of matter	Review Disabled <input type="checkbox"/>
Chemical and physical changes	Review Enabled <input checked="" type="checkbox"/>
What is motion?	Review Disabled <input type="checkbox"/>
Speed, velocity and acceleration	Review Disabled <input type="checkbox"/>

B. Generating All-Unit Tests

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

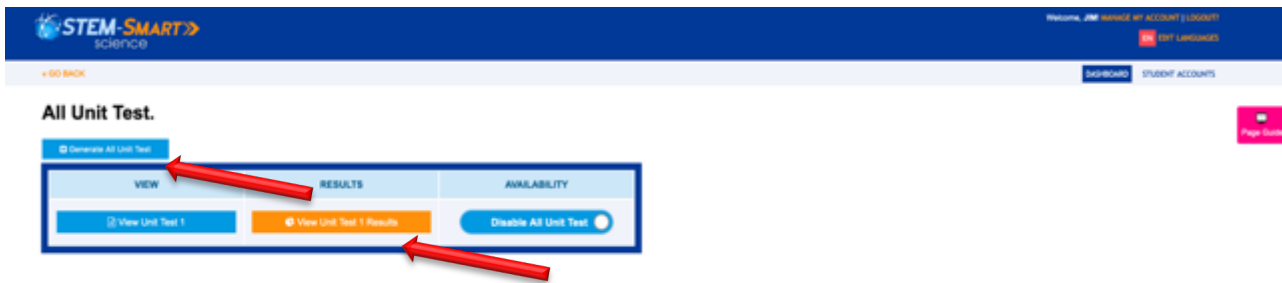


Step 2: When you click on **Generate All Unit Tests**, you will be asked to provide a name for the test and input the number of questions for the test. The screen shot below shows the teacher generating a test of 20 items. You may generate as many different tests as you like.



*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 Tests” 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



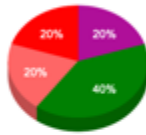
A red rock sits motionless atop some other rocks.

Balanced

Answer: Unbalanced,Unbalanced,Balanced,Balanced

STUDENT ANSWER STATISTICS

The pie chart below shows the students' answers to the question and the percentage for each selected letter choice.



● Unbalanced,Balanced,Balanced,Balanced
● Unbalanced,Unbalanced,Balanced,Balanced
● Unbalanced,Balanced,Balanced,Unbalanced
● Unbalanced,Unbalanced,Unbalanced,Balanced



● Correct
● Wrong

C. Managing the Units

Step 1: Clicking on the **Generate Unit Tests** 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.

STEM-SMART science

Welcome, IKEI | MANAGE MY ACCOUNT | LOGOUT? | EN | EDIT LANGUAGES

DASHBOARD | STUDENT ACCOUNTS

Teacher Dashboard

Page Guide

SECTIONS	ACTIONS
ALL UNIT TEST	Generate All-Unit Tests
UNIT 1: MATTER, ENERGY, FORCE AND MOTION	View Unit View Unit Results
Unit 1: Matter, Energy, Force and Motion	Generate Unit Test 1 Generate Unit Test 2
Settings	

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.

STEM-SMART science

Welcome, IKEI | MANAGE MY ACCOUNT | LOGOUT? | EN | EDIT LANGUAGES

DASHBOARD | STUDENT ACCOUNTS

Teacher Dashboard

Page Guide

SECTIONS	ACTIONS
ALL UNIT TEST	Generate All-Unit Tests
UNIT 1: MATTER, ENERGY, FORCE AND MOTION	View Unit View Unit Results
Unit 1: Matter, Energy, Force and Motion	View Unit Test 1 View Unit Test 1 Results Generate Unit Test 2
Settings	Unit Test Enabled

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).

The screenshot shows the STEM-SMART science dashboard. At the top, there's a navigation bar with 'GO BACK', 'DASHBOARD', and 'STUDENT ACCOUNTS'. The main heading is 'Student Unit Results'. Below it, a 'NOTE' section provides instructions: 'Click the column header to view the statistics for each question.', 'If the table is not displaying correctly, please refresh this page.', and 'Scroll left and right, and up and down, to view all your students' data.'. There are tabs for 'Unit Test 1 Results' and 'Unit Test 2 Results'. A table below shows results for 'Beahan, Baby' with columns for 'Q#1' through 'Q#5' and 'TOTAL %', all showing '0%'. A 'Page Guide' button is visible in the top right.

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.

This screenshot shows the English version of a review page titled 'Review 1: Structure of matter'. On the left, there are three buttons: 'Go Back to Dashboard', 'Select Page', and 'Select Language'. A red arrow points to the 'Select Language' button. The main text discusses 103 elements and the structure of atoms, mentioning protons, neutrons, and electrons. A diagram of an atom is shown on the right with labels for 'NUCLEUS', 'PROTON', 'NEUTRON', and 'ELECTRON'.

This screenshot shows the Spanish version of the same review page titled 'Examen 1: Estructura de la materia'. On the left, there are three buttons: 'Vaya al panel de control', 'Select Page', and 'Select Language'. A red arrow points to the 'Select Language' button. The main text is in Spanish, discussing 103 elements and the structure of atoms, mentioning protons, neutrons, and electrons. A diagram of an atom is shown on the right with labels for 'NUCLEUS', 'PROTON', 'NEUTRON', and 'ELECTRON'.

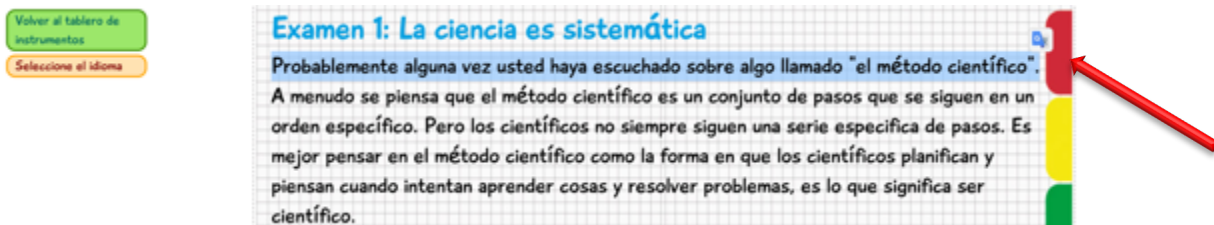
*Specific text audio and translation: If a student wants to see or hear a translation of only a single word, sentence or section of Spanish text, the “Google Translate” plugin needs to be added to their browser at:

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

After it is 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).



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.

