

Next Generation Science Standards English/Spanish Edition

**Teacher's Guide** 



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

#### **Using Science Check-up: The Teacher Dashboard**

#### **Getting Started**

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

<u>Step 2.</u> 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.

STEM-SMART»					
Let's Get Started					
Welcome to Stem-Smart! This page will	help you in updating and setting up your account.	Page			
Step 1: Your 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	Password				
Enter a new password if you would like.					
Enter a new password if you would like. Username AidenSkiles	Password Leave blank or enter new (				
Enter a new password if you would like. Username AidenSkiles About You	Password Leave blank or enter new (				

<u>Step 3</u>. 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.

<u>Step 4</u>. 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.

STEM-SMART>		
Teacher Dashboard		DASHBOARD STUDENT ACCOUNTS
SECTIONS	ACTIONS	
ALL UNIT TEST	View All Unit Test	
UNIT 1: MOLECULAR AND CELLULAR BIOLOGY	Call View Unit Call Constants Unit Test 1 Call Constants Unit Test 2	

<u>Step 5</u>. 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.

25	STEM-SMART science	<b>》</b>				Welcome, SC	COTTY! MANAGE MY ACCOUNT   LOGOUT	
io B/	ACK						DASHBOARD STUDENT ACCOUNTS	
#	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	Pag
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, Annamarie	Username: AnnamarieFeeney 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	

<u>Step 6</u>: *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 in* the lessons and to the tests that you've generated.

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

<u>Step 1</u>: 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."

STEM-SMART>> science		Welcome, JODYI MAMAGE MY ACCOUNT   LOROUT?
		DASHBOARD STUDENT ACCOUNTS
eacher Dashboard	ACTIONS	
ALL UNIT TEST	View All Unit Test	
UNIT 1: MOLECULAR AND CELLULAR BIOLOGY	Converse Unit Test 1     Generate Unit Test 2	

TEM-SMART> science	<b>&gt;</b>	Welcome, JODY NAME
ск		DASHBOAR
it 1: Molecular	and Cellular Bi	ology
Enable All Disable All		-
REVIEW		
How do cells work?	Review Enabled	
What do cells do?	Review Disabled	
What makes a cell a cell?	Review Enabled 🔵	
What's up with organ systems?	Review Disabled	
How do organ systems work?	Review Enabled 🔵	
Building bodies	Review Disabled	

#### B. Generating All-Unit Tests

<u>Step 1</u>: 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.



<u>Step 2</u>: 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.

STEM-SMART> science			Welcome, RENE) MARKER MY ACCOUNT (LOCOUT?)
« GO BACK			DASHBOARD STUDENT ACCOUNTS
		Test Name:	
All Unit Test.		Unit Test 1	
Generate All Unit Test		Number of Questions:	Page Gude
		20	
VIEW	RESULTS	Submit	

\*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.

<u>Step 3</u>: 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.

(S)	STEM-SMART» science		
« GO BAG	BACK		
	Unit Test. Generate All Unit Test		
	VIEW	RESULTS	AVAILABILITY
	View Unit Test 1	Ciew Unit Test 1 Results	Disable All Unit Test

<u>Step</u> 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.

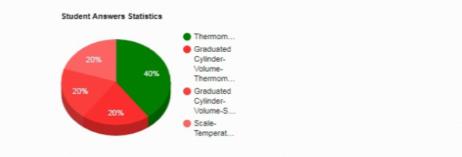
STUDENT NAME	<u>Q#1</u>	<u>Q#2</u>	<u>Q#3</u>	<u>Q#4</u>	<u>Q#5</u>	<u>Q#6</u>	<u>Q#7</u>	<u>Q#8</u>	<u>Q#9</u>	<u>Q#10</u>	TOTAL %
Beier, Dahlia	-	-	-	-	-	-	-	-	-	-	0%
Dare, Lora	-	-	-	-	_	-	-	-	-	-	0%
Kilback, Baylee	-	-	-	-	-	-	-	-	-	-	670
Ortiz, Astrid	-	-	-	-	-	-	-	-	-	-	0%
Ortiz, Olga	-	-	-	-	-	-	-	-	-	-	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.

Question A. Match each scientific instrument to its name and the properties that we use to measure them by selecting an item in the drop down lists.

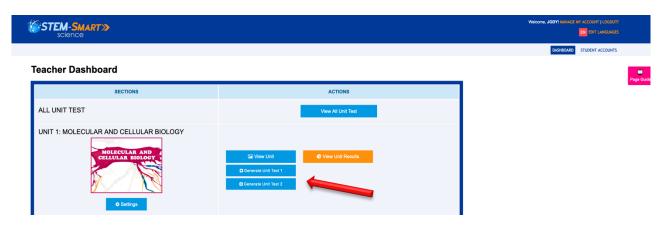






#### C. Managing the Units

<u>Step 1</u>: 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.



<u>Step 2</u>: 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.

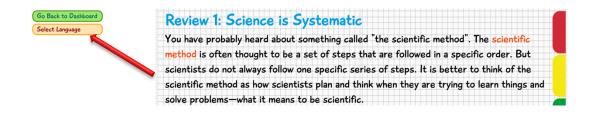
STEM-SMART>> science		Welcome, JIME HANAGE MY ACCOUNT   LOCOUTT
		DASHBDARD STUDENT ACCOUNTS
Teacher Dashboard		Page Guide
SECTIONS	ACTIONS	
ALL UNIT TEST	View All Unit Test	
UNIT 1: MOLECULAR AND CELLULAR BIOLOGY	Sa View Unit Wew Unit Results Wew Unit Test 1 Results Unit Test 1 Enabled	

<u>Step 3</u>: 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).

STEM-SMART> science					Welcome, SC	OTTY! MANAGE A	WY ACCOUNT   LOGOUT	
« GO BACK						DASHBOARD	STUDENT ACCOUNTS	5
Student Unit Results NOTE: • Click the column header to view the statistics for each • If the table is not displaying correctly, please refresh th • Scroll left and right, and up and down, to view all your Unit Unit Test 1 Results Unit Test 2 Results UNIT TEST PESULTS	nis page.							Page Gu
STUD UT NAME	C.	<u>Q#2</u>	<u>Q#3</u>	<u>Q#4</u>	<u>Q#5</u>	т	OTAL %	
Beahan, Baby	_	_	_	_	_		0%	
P							00/	

#### D. Translation and Audio Features

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



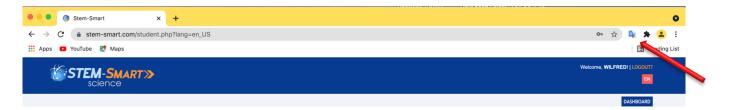


Examen 1: La ciencia es sistemática Probablemente alguna vez usted haya escuchado sobre algo llamado "el método científico". A menudo se piensa que el método científico es un conjunto de pasos que se siguen en un orden específico. Pero los científicos no siempre siguen una serie especifica de pasos. Es mejor pensar en el método científico como la forma en que los científicos planifican y piensan cuando intentan aprender cosas y resolver problemas, es lo que significa ser científico.

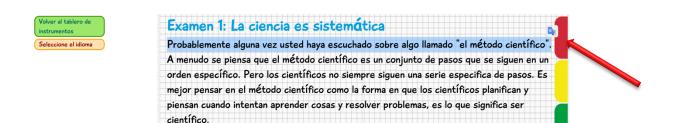
\*<u>Specific text audio and translation</u>: If a student wants to see or hear a translation of only a single word, sentence or section of Spanish text, the "Google Translate" plugin needs to be added to their browser at:

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.



<u>Step 1:</u> 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.



<u>Step 2:</u> 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.

