



# *Science Check-up!*

## NEW JERSEY

English/Spanish Edition

Teacher's Guide

**LIFE  
SCIENCE**



INTERACTIVE LEARNING ONLINE



# ***Science Check-up*** **New Jersey**

**Life Science**

# **Teacher's Guide**

***English/Spanish Edition***

# STEM-Smart

## *Science Check-up* Team

### Authors

James A. Shymansky  
B.S. Physics Education, M.S. Physics, Ph.D. Science Education

John A. Dunkhase, B.S. Geology, Ph.D. Geochemistry

Kevin E. Koepnick  
B.S. General Science, M.S. Science Education

Matthew J. Harding  
B.A. Physics Education, M.A. Science Education

John Craven  
B.S. Education, B.S. Animal Science, M.S. Geology, Ph.D. Science Education

### Production

Senior Editor  
Julie Shymansky

Technical Editor  
Brock Shymansky

Photography/Videography  
Teresa Shymansky

Design Editor  
Malachi Rocca

Art Design  
Kimberlee Rocca

Programming Director  
Raina Conde

Copyright © Interactive Learning Online, LLC, Publisher 2023

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording or any information storage or retrieval system without permission in writing from the publisher.

Interactive Learning Online, LLC. 2598 Quincy Road, NE, Solon, IA 52333. USA

## REVIEWERS

Len Annetta, Taft Distinguished Professor of Science Education, East Carolina University  
Craig Berg, Professor of Science Education, University of Wisconsin-Milwaukee  
Paul Burrage, Elementary Teacher, Palm Beach County, Florida  
Jenn Chidsey, Managing Director of Learning and Impact, Austin Texas  
Charlene Czerniak, Professor of Science Education, University of Toledo  
Pradeep Dass, Professor of Science Education, Northern Arizona University  
Carmen Fies, Associate Professor of Science Education, University of Texas-San Antonio  
Maureen Funk, Science Consultant, Princeton, Missouri  
Tracy Hogan, Associate Professor of Science Education, Adelphi University  
Andrew Miller, Curriculum Coordinator, Normandy Schools Collaborative, Missouri  
Eric Olson, Associate Professor of Science Education, State University of New York-Oswego  
Joanne Olson, Professor of Science Education, Texas A&M University  
Regina Peter, Director, Newmark Schools, Scotch Plains, New Jersey  
Nancy Romance, Professor of Science Education, Florida Atlantic University  
Jan Rutt, Elementary/Middle School Teacher, Columbus Junction, Iowa  
Tom Salinsky, Elementary Science Coordinator, Palm Beach County, Florida  
Sherry Southerland, Professor of Science Education, Florida State University  
John Tillotson, Associate Professor of Science Education, Syracuse University  
Pete Veronesi, Professor of Science Education, State University of New York-Brockport

# ***Science Check-up: New Jersey***

## **Life Science**

### ***About Science Check-up***

\**Science Check-up*: New Jersey 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 the *New Jersey Learning Assessment (NJSLA)* Life Science test.

\*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***

<b>Unit 1: Molecular and Cellular Biology</b>	<b>Suggested Reviews</b>
<p>Cell structures and functions; Cellular processes; Organs and organ systems</p>	<p>Review 1.: How do cells work? Review 2: What do cells do? Review 3: What makes a cell a cell? Review 4: What’s up with organ systems? Review 5: How do organ systems work? Review 6: Building bodies</p>
<b>Unit 2: Classification, Heredity, and Evolution</b>	
<p>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;</p>	<p>Review 1: What’s up with this evolution stuff? Review 2: DNA transmits information Review 3: How mutations happen Review 4: Selection happens Review 5: Understanding evolution Review 6: How does evolution work? Review 7: Advantages and disadvantages? Review 8: What makes living things unique? Review 9: What are adaptations? Review 10: Endless adaptations</p>
<b>Unit 3: Organisms, Populations, and Ecosystems</b>	
<p>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.</p>	<p>Review 1: Life starts with the sun Review 2: Living things depend on plants Review 3: How energy flows in living things Review 4: How humans fit into natural systems Review 5: Humans using natural resources.</p>

# Using Science Check-up: The Teacher Dashboard

## Getting Started

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

**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: AidenSkills  
Password: Leave blank or enter new |

**About You**  
Please enter your first name, last name and gender.

First name: Aiden  
Last name: Skills

**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: MOLECULAR AND CELLULAR BIOLOGY

ACTIONS: View All Unit Test, View Unit, View Unit Results, Generate Unit Test 1, Generate Unit Test 2, Settings

**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 <a href="#">Manage Account</a>	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 <a href="#">Manage Account</a>	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:** *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 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"/>	English	<input checked="" type="radio"/> Set as default
<input type="checkbox"/>	Spanish	<input type="radio"/> Set as default

### ***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 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 three of the six reviews have been enabled and will be open for student access. The default for all reviews in all units is “Enable All.”



### Teacher Dashboard

SECTIONS	ACTIONS
ALL UNIT TEST	<a href="#">View All Unit Test</a>
UNIT 1: MOLECULAR AND CELLULAR BIOLOGY  <a href="#">Settings</a>	<a href="#">View Unit</a> <a href="#">View Unit Results</a> <a href="#">Generate Unit Test 1</a> <a href="#">Generate Unit Test 2</a>



### Unit 1: Molecular and Cellular Biology


[Enable All](#) [Disable All](#)

REVIEW	
How do cells work?	<a href="#">Review Enabled</a>
What do cells do?	<a href="#">Review Disabled</a>
What makes a cell a cell?	<a href="#">Review Enabled</a>
What's up with organ systems?	<a href="#">Review Disabled</a>
How do organ systems work?	<a href="#">Review Enabled</a>
Building bodies	<a href="#">Review Disabled</a>

### 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.

### Teacher Dashboard


SECTIONS	ACTIONS
ALL UNIT TEST	<a href="#">View All Unit Test</a>
UNIT 1: MOLECULAR AND CELLULAR BIOLOGY  <a href="#">Settings</a>	<a href="#">View Unit</a> <a href="#">View Unit Results</a> <a href="#">Generate Unit Test 1</a> <a href="#">Generate Unit Test 2</a>





(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.

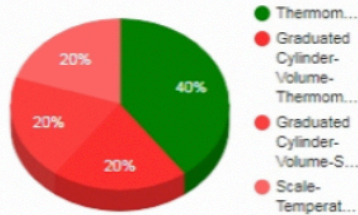


Scientific Instruments: Thermometer, Scale, Graduated Cylinder

Properties: Temperature, Weight, Volume

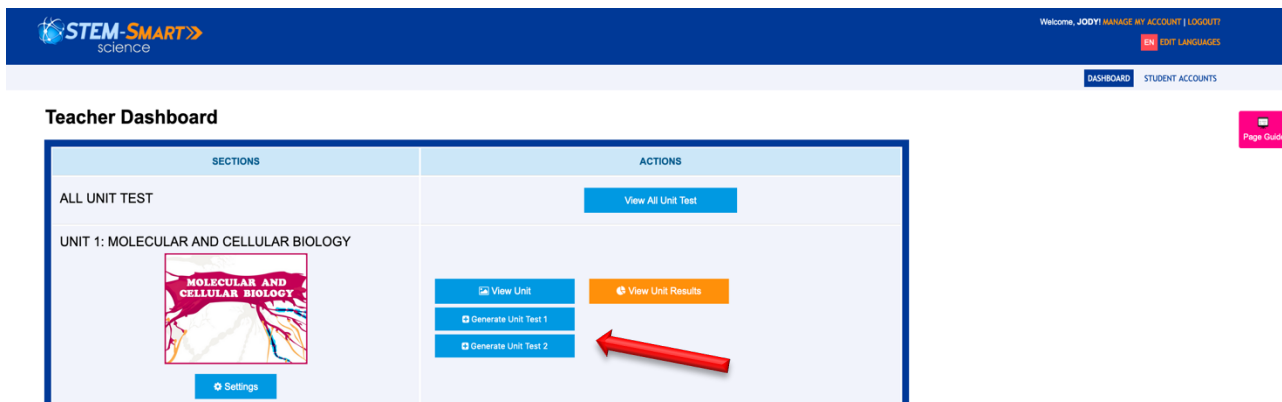
Correct Answer: THERMOMETER-TEMPERATURE-SCALE-WEIGHT-GRADUATED CYLINDER-VOLUME

Student Answers Statistics



### 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.



STEM-SMART science

Welcome, JODY! MANAGE MY ACCOUNT | LOGOUT

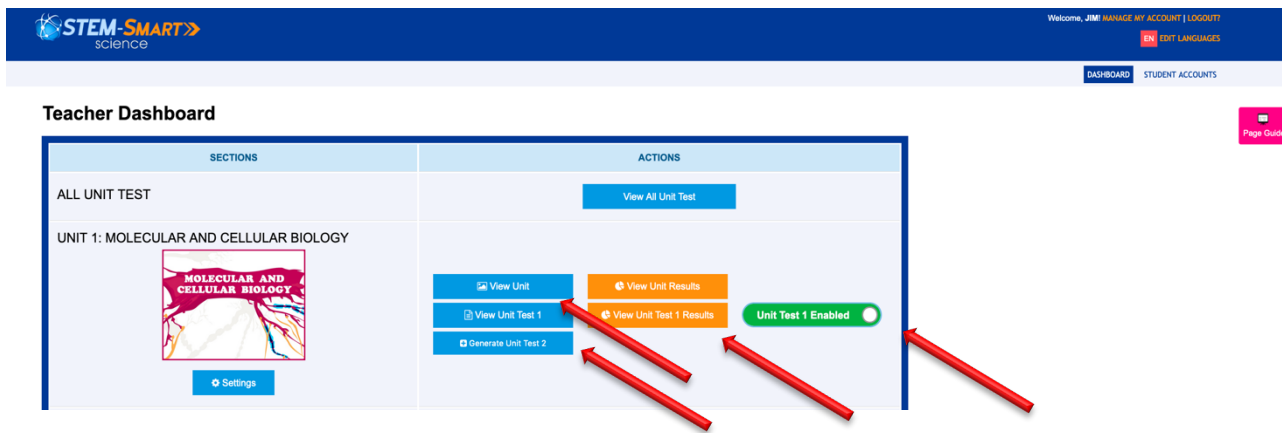
EN | EDIT LANGUAGES

DASHBOARD | STUDENT ACCOUNTS

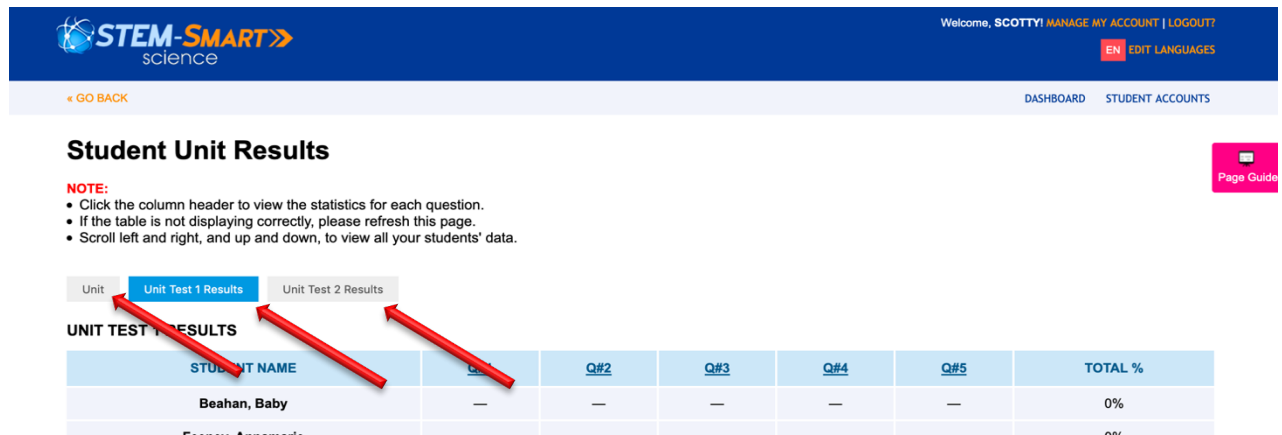
#### Teacher Dashboard

SECTIONS	ACTIONS
ALL UNIT TEST	<a href="#">View All Unit Test</a>
UNIT 1: MOLECULAR AND CELLULAR BIOLOGY	<a href="#">View Unit</a> <a href="#">View Unit Results</a> <a href="#">Generate Unit Test 1</a> <a href="#">Generate Unit Test 2</a>

**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.

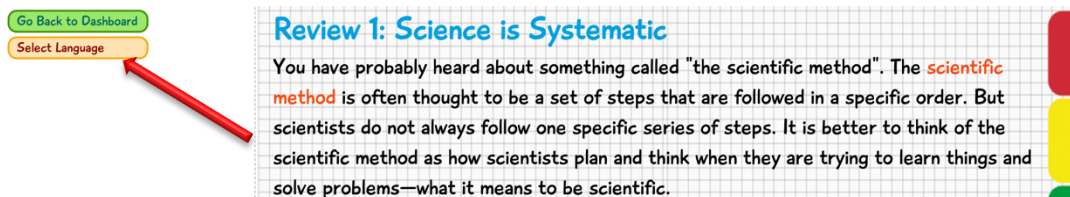


**Step 3:** After students have finished a unit and it has been disabled (closed), clicking on **View Unit Results**, takes you to **Student Unit Results** screen that are the same as the “all unit” tests (See Section B.4 above).



#### 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.



Volver al tablero de instrumentos  
Seleccione el idioma

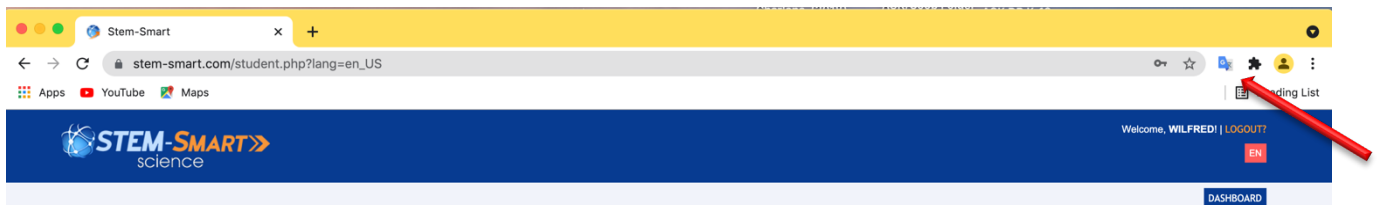
### Examen 1: La ciencia es sistemática

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 específica 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.

\*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.

Volver al tablero de instrumentos  
Seleccione el idioma

### 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 específica 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.

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.

Volver al tablero de instrumentos  
Seleccione el idioma

### 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 específica 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.

Spanish

Probablemente alguna vez usted haya escuchado sobre algo llamado "el método científico".

ENGLISH

You've probably ever heard of something called "the scientific method."