



Science Check-up!

Next Generation Science Standards

English/Spanish Edition

Teacher's Guide

**GRADE
3-5**

INTERACTIVE LEARNING ONLINE



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STEM-Smart

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Science Check-up

Next Generation Science Standards

Grade 3-5

About Science Check-up

**Science Check-up* is an online product that focuses on the big ideas outlined in the Grade 3-5 *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. Fifth grade teachers will find *Science Check-up* an especially useful tool for helping students prepare for the tests given at the end of Grade 5, but 3rd and 4th grade teachers can also use selected reviews to capitalize on the power and fun of *Science Check-up* and to lessen the burden on 5th 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 3-5 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 3-5 NGSS Alignment

Category	Suggested Lessons
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	Lesson 1: Practices of Science Lesson 2: Scientific Investigations Lesson 3: Measurement & Analysis Lesson 4: Claims, Evidence & Reasoning Lesson 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	Lesson 1: Our solar system Lesson 2: Space and the universe Lesson 3: Energy from the Sun. Lesson 4: Natural Resources Lesson 5: Rock Cycle Lesson 6: Weathering and Erosion Lesson 7: Water – Solid, Liquid, or Gas Lesson 8: Water Cycles! Lesson 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	Lesson 1: Different matter forms Lesson 2: Temperature matters Lesson 3: When matter is mixed Lesson 4: Physical and chemical changes Lesson 5: What is energy anyway? Lesson 6: Two basic forms of energy Lesson 7: All kinds of energy Lesson 8: Balanced forces are boring Lesson 9: Net forces make things happen Lesson 10: How much force is needed? Lesson 11: Electric circuits are simple Lesson 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	Lesson 1: How do body systems work? Lesson 2: How animals behave. Lesson 3: What are plants up to anyway? Lesson 4: Solar power for life. Lesson 5: How do living things change? Lesson 6: What are some animal adaptations? Lesson 7: How do life forms change? Lesson 8: Habitats? Ecosystems? What's the deal? Lesson 9: What makes a biome? Lesson 10: How do living things interact?

Using Science Check-up: The Teacher Dashboard

Getting Started

Step 1. Login at <http://stem-smart.com/ngss-e/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: AidenSkiles
Password: Leave blank or enter new

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

First name: Aiden
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 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.

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	ACTIONS
ALL UNIT TEST	View All Unit Test
UNIT 1: NATURE OF SCIENCE	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 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 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.

Language Settings

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

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 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

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 five lessons have been enabled and will be open for student access. The default for all lessons in all units is “Enable All.”

Teacher Dashboard

SECTIONS	ACTIONS
ALL UNIT TEST	View All Unit Test
UNIT 1: NATURE OF SCIENCE	View Unit View Unit Results
 Settings	Generate Unit Test 1 Generate Unit Test 2



Unit 1: Nature of science

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

REVIEW	
Practices of Science	<input checked="" type="checkbox"/> Review Enabled
Scientific Investigation	<input type="checkbox"/> Review Disabled
Measurement and Analysis	<input checked="" type="checkbox"/> Review Enabled
Evidence, Reason and Knowledge	<input type="checkbox"/> Review Disabled
Let's Argue about It!	<input checked="" type="checkbox"/> Review Enabled

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	View All Unit Test
UNIT 1: NATURE OF SCIENCE	View Unit View Unit Results
 Settings	Generate Unit Test 1 Generate Unit Test 2



(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

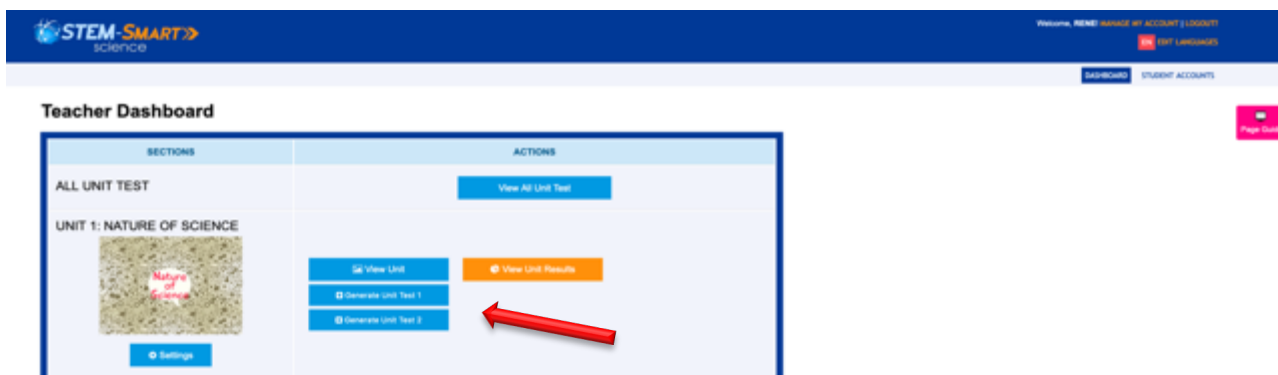
Properties: Temperature, Weight, Volume

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



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

Teacher Dashboard

ALL UNIT TEST

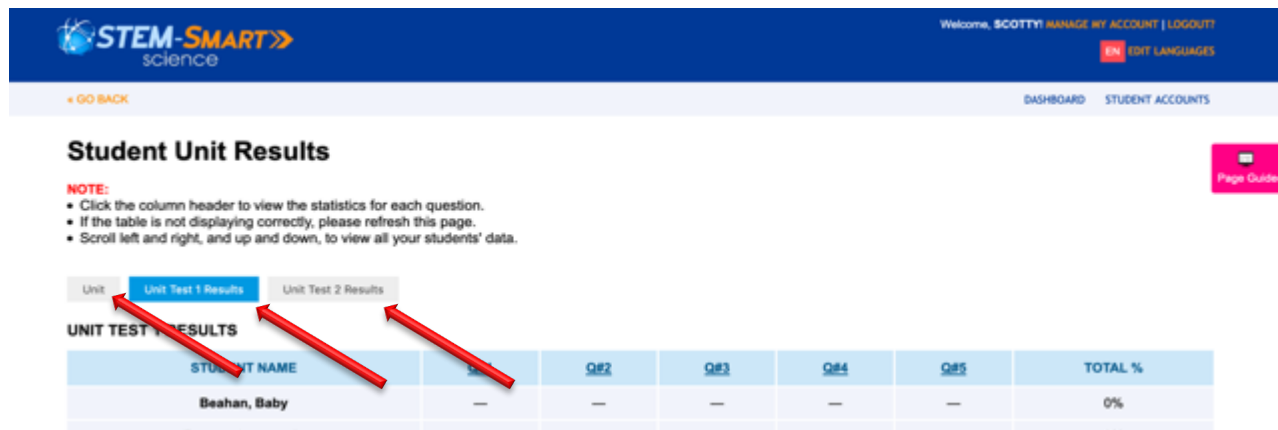
UNIT 1: NATURE OF SCIENCE

Generate Unit Test 2

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.

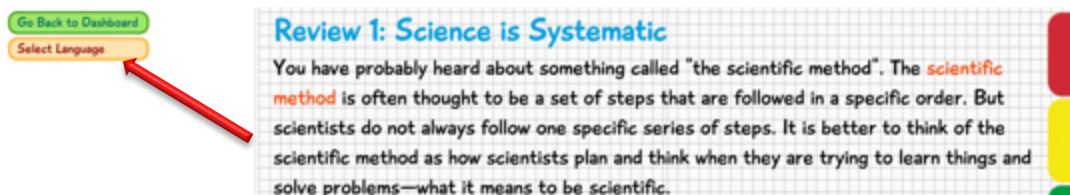


Step 3: After students have finished a unit and it has been disabled (closed), clicking on **View Unit Results**, takes you to **Student Unit Results** screen that are the same as the “all unit” tests (See Section B.4 above).



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

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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

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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."