



# *Science Check-up!*

Next Generation Science Standards

English/Arabic Edition

Teacher's Guide

**GRADE  
3-5**

INTERACTIVE LEARNING ONLINE



# ***Science Check-up***

**Next Generation Science Standards**

**Grade 3-5**

# **Teacher's Guide**

***English/Arabic Edition***

# STEM-Smart

## *“Science Check-up”* Team

### Authors

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

Ibrahim Al-Momani  
B.S. Science Education, M.S. Chemistry, 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

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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***

## **English/Arabic Edition**

### **Grades 3-5**

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

\**Science Check-up: English/Arabic Edition--Grades 3-5* is an online supplement that focuses on the *Next Generation Science Standards* (NGSS) that upper elementary students encounter in their Jordanian 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 Arabic with a simple click of the *EN/AR* language buttons in the tool bar. Second language learners can use a built-in translation function to see and hear all text in both Arabic 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 3<sup>rd</sup> and 4<sup>th</sup> grade teachers can also use selected reviews to capitalize on the power and fun of *Science Check-up* and to lessen the burden on 5<sup>th</sup> 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***

<b>Category</b>	<b>Suggested Reviews</b>
<b>Unit 1: Nature of Science</b>	
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	Review 1: Practices of Science Review 2: Scientific Investigations Review 3: Measurement & Analysis Review 4: Claims, Evidence & Reasoning Review 5: Let's argue about it!
<b>Unit 2: Earth &amp; Space Science</b>	
Earth's revolutions; Earth's rotation; Classifying rocks; Mineral properties; Streak color; Renewable vs nonrenewable resources; Weathering-water; Components of a galaxy, Star 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	Review 1: Our solar system Review 2: Space and the universe Review 3: Energy from the Sun. Review 4: Natural Resources Review 5: Rock Cycle Review 6: Weathering and Erosion Review 7: Water – Solid, Liquid, or Gas Review 8: Water Cycles! Review 9: How Weather Works
<b>Unit 3: Physical Science</b>	
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	Review 1: Different matter forms Review 2: Temperature matters Review 3: When matter is mixed Review 4: Physical and chemical changes Review 5: What is energy anyway? Review 6: Two basic forms of energy Review 7: All kinds of energy Review 8: Balanced forces are boring Review 9: Net forces make things happen Review 10: How much force is needed? Review 11: Electric circuits are simple Review 12: Don't mess with electricity
<b>Unit 4: Life Science</b>	
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	Review 1: How do body systems work? Review 2: How animals behave. Review 3: What are plants up to anyway? Review 4: Solar power for life. Review 5: How do living things change? Review 6: What are some animal adaptations? Review 7: How do life forms change? Review 8: Habitats? Ecosystems? What's the deal? Review 9: What makes a biome? Review 10: How do living things interact?

# Using Science Check-up: The Teacher Dashboard

## Getting Started

Step 1. Login at <http://en-ar.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.

STEM-SMART science

Welcome, AIDEN | LOGOUT

### 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

Page Guide

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.

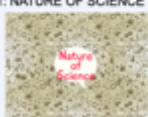
STEM-SMART science

Welcome, RENE | MANAGE MY ACCOUNT | LOGOUT

EN | AR | LANGUAGE

DASHBOARD | STUDENT ACCOUNTS

### Teacher Dashboard

SECTIONS	ACTIONS
ALL UNIT TEST	<a href="#">View All Unit Test</a>
UNIT 1: NATURE OF SCIENCE	<a href="#">View Unit</a> <a href="#">View Unit Results</a>
	<a href="#">Generate Unit Test 1</a>
<a href="#">Settings</a>	<a href="#">Generate Unit Test 2</a>

Page Guide

**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:** 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"/>	English	<input checked="" type="radio"/> Set as default
<input checked="" type="checkbox"/>	Arabic	<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 three of the five 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
ALL UNIT TEST	<a href="#">View All Unit Test</a>
UNIT 1: NATURE OF SCIENCE	<a href="#">View Unit</a> <a href="#">View Unit Results</a>
 <a href="#">Settings</a>	<a href="#">Generate Unit Test 1</a> <a href="#">Generate Unit Test 2</a>



Unit 1: Nature of science

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

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

**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: NATURE OF SCIENCE	<a href="#">View Unit</a> <a href="#">View Unit Results</a>
 <a href="#">Settings</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.



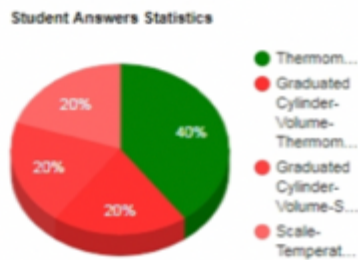
Scientific Instruments:

- Thermometer
- Scale
- Graduated Cylinder

Properties:

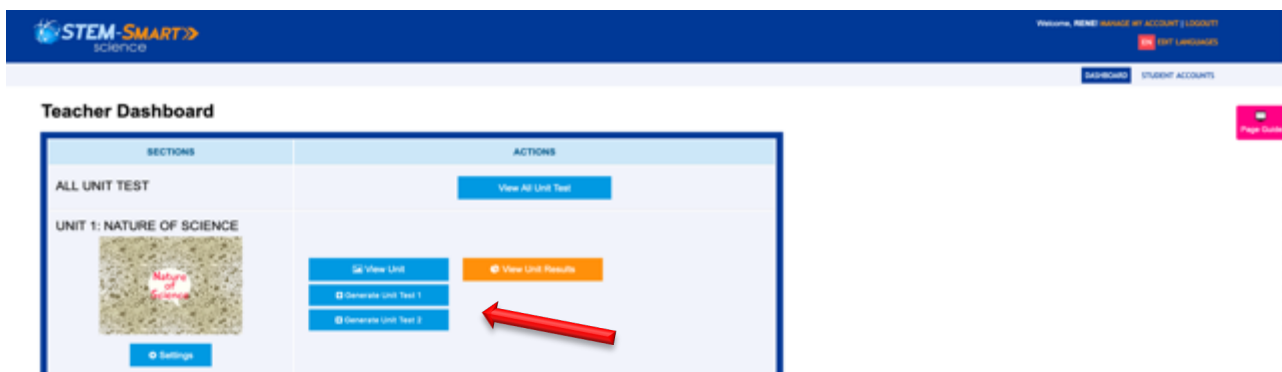
- Temperature
- Weight
- Volume

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



### 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

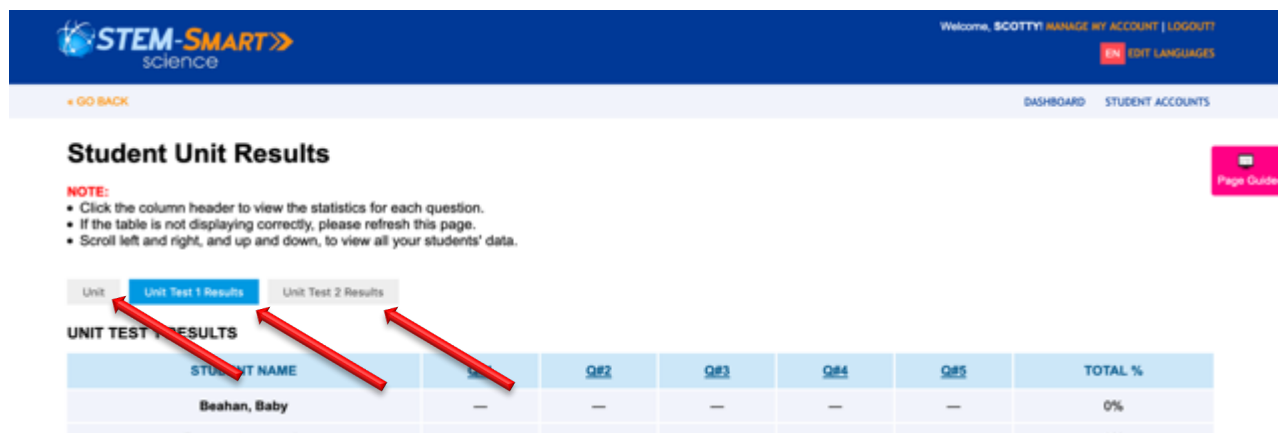
UNIT 1: NATURE OF SCIENCE

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 Arabic by clicking on the “Select Language” tab. A sample translation is shown below.


Go Back to Dashboard

Select Page

Select Language

**Review 2: Scientific Investigation**

The **hypothesis** is your proposed explanation of how you think the phenomenon in question (what you have observed) works. A **prediction** is a testable statement about what you think may happen if certain events occur or if you do certain things. A **scientific investigation** is what is done to test predictions and to provide **evidence** to support or reject your hypothesis.



العودة إلى اللوحة

التوجيهية

اختار الصفحة

اختار اللغة

## مراجعة 2: التحقيق العلمي

الفرضية هي عبارة عن تفسيرك المقترح لتسألك عن كيفية عمل ظاهرة (ماذا لاحظت). التنبؤ هو بيان قابل للإختبار حول ما تتوقع أن يحدث في حالة وقوع أحداث معينة أو إذا كنت تقوم بحدث ما. الاستكشافات العلمية هي ماذا حدث لإختبار التوقعات وتوفير الأدلة لدعم أو رفض فرضيتك.



\***Specific text audio and translation:** If students want to see or hear a translation of a word, a sentence or even a full page of Arabic text, they can use “Google Translate” which is on the Chrome browser. If Chrome is not being use, the “Google Translate” plugin needs to be added to their browser at:

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

**Step 1:** After highlighting a word or sentence, the Google Translate icon will appear near the highlighted word or sentence. 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 Arabic. Clicking on the “speaker” icons in the box will produce audios of both translations.

العودة إلى اللوحة

التوجيهية

اختار الصفحة

اختار اللغة

لتسألك عن كيفية عمل ظاهرة (ماذا لاحظت). التنبؤ هو بيان قابل  
حالة وقوع أحداث معينة أو إذا كنت تقوم بحدث ما. الاستكشافات  
ماذا حدث لإختبار التوقعات وتوفير الأدلة لدعم أو رفض فرضيتك.



Arabic

ية هي ماذا حدث لإختبار التوقعات وتوفير الأدلة لدعم  
أو رفض فرضيتك.

ENGLISH

Scientific what happened to test  
predictions and provide evidence to support  
or reject your hypothesis.

TRANSLATE THIS PAGE

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