



Science Check-up!

Next Generation Science Standards

English/Chinese Edition

GRADE
3-5

INTERACTIVE LEARNING ONLINE



Science Check-up

Next Generation Science Standards

Grade 3-5

Teacher's Guide

English/Chinese Edition

STEM-Smart

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Science Check-up

English/Chinese Edition

Grades 3- 5

About Science Check-up

**Science Check-up: English/Chinese Edition--Grades 3-5* is an online supplement that focuses on the *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 Chinese with a simple click of the *EN/CN* language buttons in the tool bar. Second language learners can use a built-in translation function to see and hear all text in both Chinese 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 Reviews
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	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!
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	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
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	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
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	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 <https://en-zh.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 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	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

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 Chinese. 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 Chinese by clicking the EN or CN button at the top right of their screen. You may also choose to enable only one of the languages as well. The default for the Chinese is “Traditional,” but it can be changed to “Simplified” using “Google Translate” as needed.

Language Settings

Enable	Languages	Default
<input checked="" type="checkbox"/> Enabled	English	<input checked="" type="radio"/> Set as default
<input type="checkbox"/> Disabled	Chinese	<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 the STEM-Smart units, open and close any or all 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	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.



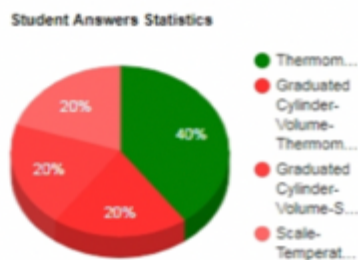
Scientific Instruments:

- Thermometer
- Scale
- Graduated Cylinder

Properties:

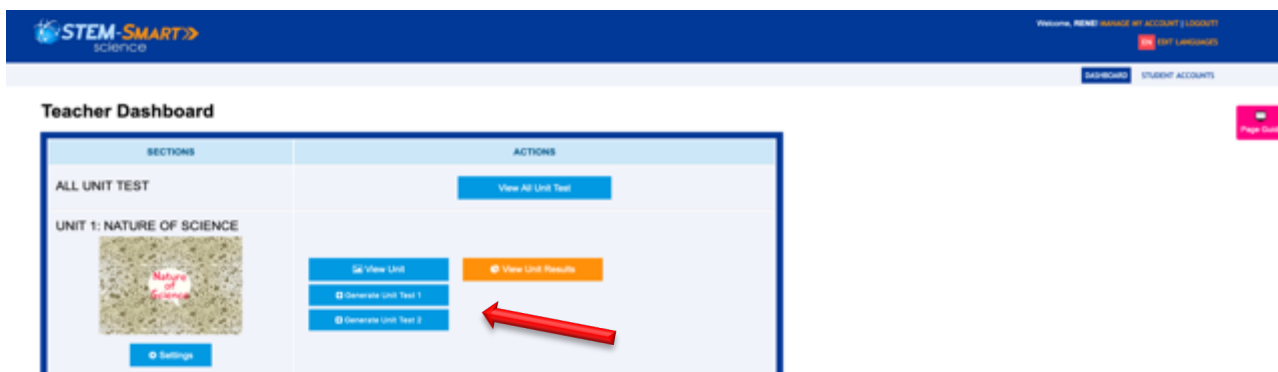
- Temperature
- Weight
- Volume

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

SECTIONS

- ALL UNIT TEST
- UNIT 1: NATURE OF SCIENCE

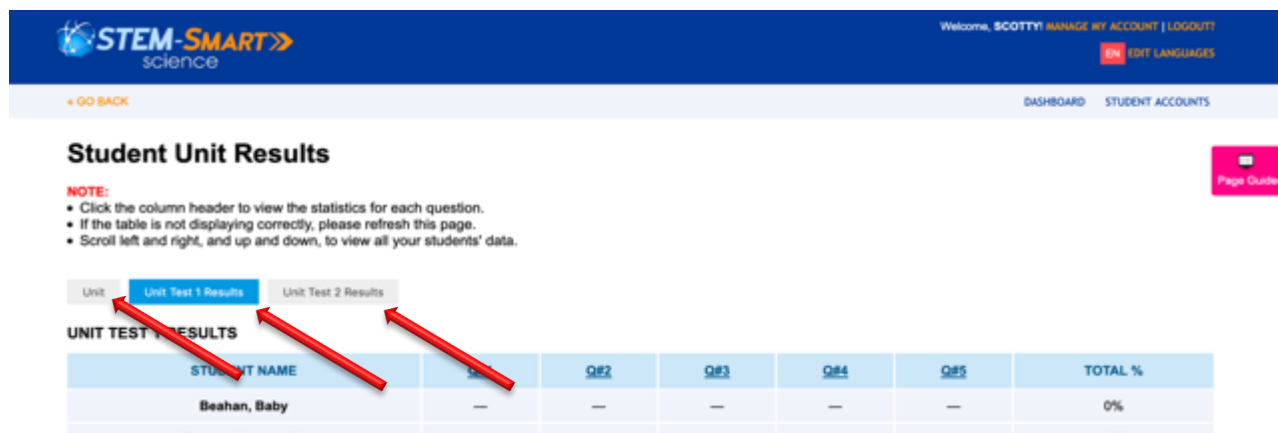
ACTIONS

- View All Unit Test
- View Unit
- View Unit Results
- Generate Unit Test 1
- 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.

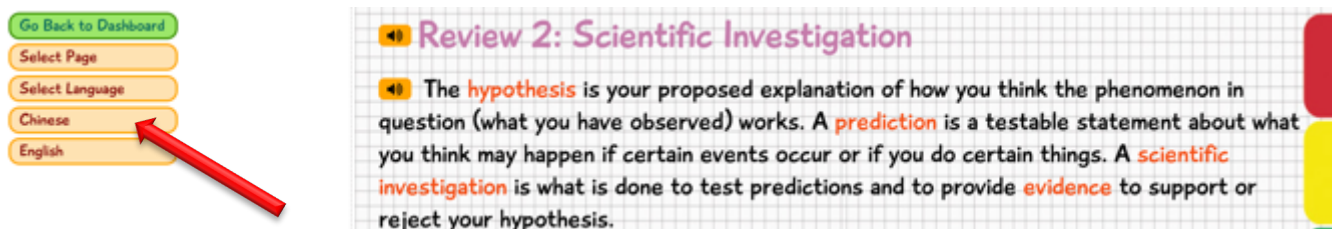


Step 3: After students have finished a unit and it has been disabled (closed), clicking on **View Unit Results**, takes you to **Student Unit Results** screen that are the same as the “all unit” tests (See Section B.4 above).



D. Translation and Audio Features

***Text translation:** If both languages are enabled, students can toggle at any time between English and Chinese by clicking on the “Select Language” tab. **The default is set for “Traditional Chinese.”** A sample translation is shown below.



- 返回到主選單
- 選擇頁面
- 選擇語言

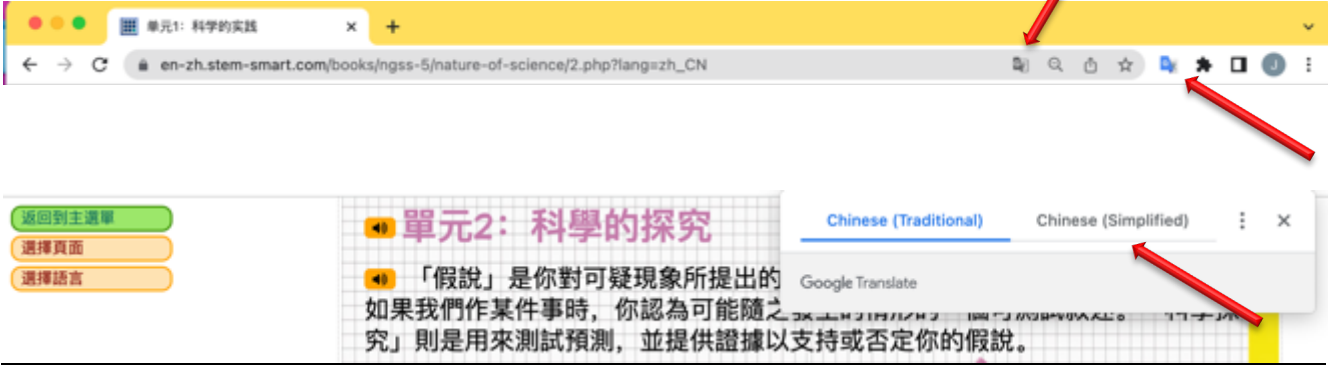
單元2：科學的探究

「假說」是你對可疑現象所提出的可能解釋。「預測」，則是某事件出現或如果我們作某件事時，你認為可能隨之發生的情形的一個可測試敘述。「科學探究」則是用來測試預測，並提供證據以支持或否定你的假說。

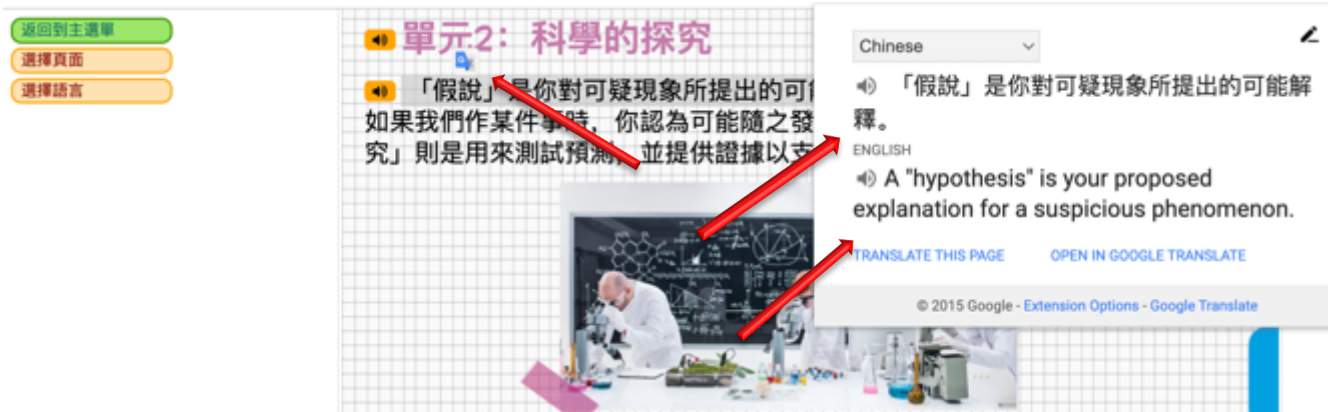
*Specific text translation with audio: To see or hear a translation of only a single word, sentence or section of Chinese text, the “Google Translate” function on Google Chrome can be used or the Google Translate plugin needs to be added to their browser at:

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

***NOTE:** When text is displayed in Chinese, two Google Translate icons will appear in the toolbar. The Traditional text can be changed to Simplified text by clicking on the left icon as shown below.



The translation of the Traditional or Simplified Chinese can then be done by highlighting a word, a sentence or a section of text on the screen and clicking on the Google Translate icon near the highlighted word or sentence(s). A sample of a Google Translate operation is shown below.



Clicking on the translation icon produces a box that contains the word or sentence(s) in English and Chinese. Clicking on the “speaker” icons in the box will produce audios of both translations.