



Next Generation Science Assessments

The Next Generation Science Standards (NGSS) were adopted by the Hawai'i Board of Education in February 2016 and are to be fully implemented by school year (SY) 2019-2020. As a result, beginning this school year the HSA Science Assessments, Biology End-of-Course Exam and HSA-Alt Science assessments will be based upon the NGSS and no longer aligned with the Hawaii Content and Performance Standards III for Science. These tests will be referred to as HSA Science (NGSS), Biology EOC Exam (NGSS), and HSA-Alt Science (NGSS) respectively. The HSA Science (NGSS) will be administered in grades 5 and 8. Each of the tests will assess students' understanding of the NGSS performance expectations across the corresponding grade band (3-5, 6-8 and high school life science). Information about the science standards can be found at www.nextgenscience.org.

Testing Time and Schedule

Below are the estimated testing times and schedule for the 2019-2020 NGSS assessments.

	Grades	Estimated Time*	Number of Opportunities	Testing Window	
				Open	Close
HSA-Science (NGSS)	5 and 8	90-120 minutes	2**	01/08/20**	05/28/20
	5 and 8 multi-track schools			01/08/20**	06/19/20**
Biology EOC Exam (NGSS)	Fall (block schedule schools only)	90-120 minutes	1	11/25/19	12/20/19
	Spring		1	04/27/20	05/28/20
	Multi-track Schools		1	06/01/20	06/19/20**
	Summer		1	06/15/20**	07/17/20**

* The tests are untimed and students may be provided as much time as they need to finish. The tests may be given on a single day (with a break recommended) or over multiple days. The times are estimates for the 2019-2020 Operational Field Test. More accurate estimates will be available in the future.

** Subject to Change

Online Test Administration

The NGSS assessments are administered using the online Test Delivery System. This is the same online system that students use to complete the Smarter Balanced assessments in mathematics and language arts with similar [technology specifications](#).

Test Design and Item Types

The NGSS assessments at each grade include 6 item clusters and 12 stand-alone items. Additional items being field tested will also be embedded in the live test. **Item clusters** include a stimulus and a series of questions that generally take students about 6-12 minutes to complete. **Stand-alone items** are shorter and generally take students 1-3 minutes to complete. All items ask students to use science and engineering practices and apply their understanding of disciplinary core ideas and crosscutting concepts to make sense out of [real-world phenomena](#). There are a variety of item types including selected response, multi-select, table match, edit in-line choice, and simulations of science investigations. All items on the live assessments were field tested in spring 2018 with results and feedback reviewed thoroughly.

Sample Items and Practice Tests

Sample items for the NGSS assessments can be found on the Hawai'i Statewide Assessment Program Portal at <http://airscience.tds.airast.org/student>. To access the items, click on the icon in the upper left of the page →

More comprehensive NGSS practice tests will be available at the end of October 2019.



Universal Tools, Designated Supports and Accommodations

A variety of tools and supports are available for all students completing the NGSS assessments. These include such features as text-to-speech. In addition, accommodations such as large print or Braille versions of the tests are available for students receiving special education services. Further information about the universal tools, designated supports and accommodations can be found at <https://hsa.alohahsap.org/resources/accessibility-and-accommodations/>.

Reporting and Standard Setting

An overall score in Science, as well as three subscores for students' use of the science and engineering practices to demonstrate understanding of the core disciplinary ideas and crosscutting concepts in Life, Physical, and Earth/Space Sciences will be reported for each student. Achievement standards that establish the performance levels will be set by a committee of Hawai'i educators and community members following the spring 2019 administration.

Accountability

Student participation in these assessments is part of federal accountability under StriveHI. This includes a target of 95 percent participation for all students. Proficiency results from the NGSS assessments will be incorporated into state-level accountability.

NGSS Interim Assessments

Interim assessments are an additional NGSS resource that will be available to school starting in early October 2019. The NGSS interim assessments are comprised of short “testlets” that include item clusters aligned to performance expectations across a variety of content areas (e.g., Ecosystems, Earth Systems, Force and Motion). Each “testlet” should take students about 15-20 minutes to complete. Instant feedback is provided and teachers can track their students’ performance using the Air Ways reporting system (<https://hi.airways.airast.org/>). Teachers can view the NGSS interim assessments using the AVA System (Interim Assessment Viewing Application) found at <https://hi.airways.airast.org/>. The interims can be administered to students using the TA Live Site as are the Smarter Balanced Interim Assessments.

Hawai‘i Alternate Science Assessment

The Hawai‘i Alternate Science Assessments (HSA-Alt Science) are available for a select group of students with significant cognitive impairment. These tests are administered at grades 5, 8, and 11. Each test will contain approximately 35 items based upon the NGSS-aligned performance level descriptors (PLDs) as well as up to 10 filed test items. The PLDs, which have been reduced in complexity for these students, can be found in the Hawai‘i Alternate Assessment Test Administration Resources.

Further information about the Alternate Assessments can be found at <http://hsa-alt.alohahsap.org/>

Operational Field Tests in 2019-2020

The SY2019-20 administration of the HSA-Science (NGSS) and Biology EOC Exam (NGSS) assessments will be operational field tests. This means that achievement standard setting (determining performance levels and establishing cut scores) will take place during summer 2020 so scores will not be immediately available. It is anticipated that student scores, Family Reports, and similar information will be available in August 2020.

Further Information and Resources

Additional information including item specifications, test design and blueprints, proposed reporting categories, guides for parents, and parent letters will become available at <https://hsa.alohahsap.org/> and <https://eoc.alohahsap.org/> during the school year. These will be announced in the Assessment News, <https://smarterbalanced.alohahsap.org/resources/hawaii-doe-assessment-news/> as they are posted on the website.

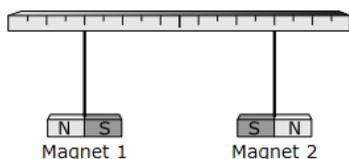
Sample NGSS Assessment Item Cluster for Grade 5

Aligned to 3-PS2-3 Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

Two magnets are placed right next to each other. They seem to pull together. A third magnet is then placed right next to the first two magnets. This magnet seems to push away from the first two.

To help better understand these forces, you can conduct an experiment by tying two magnets to strings and hanging them from a meter stick. You can then observe how the magnets interact with each other. The setup of the experiment is shown in Picture 1.

Picture 1. Hanging Magnets Experiment



In the experiment, you will be able to change the orientation of each magnet as well as the distance between the magnets. The orientation of the magnet depends on the direction that the N (north) side is pointing.

For example, a magnet's orientation can start with the N side pointing to the right. If the orientation is changed, then the N side is pointing to the left.

Your Task

In the following questions, you will set up and perform an experiment that will help you understand what affects the force between the two magnets.

Each item cluster includes a **stimulus** based on a real-world scientific phenomena. It provides background information for the student and is used in answering the item interactions.

Item interactions including a computer simulation of a science investigation involving magnets. Students collect evidence to develop a cause and effect relationship.

Part A

Select a testable, scientific question that can be answered by performing an experiment with the setup shown in Picture 1.

- How does the distance between the magnets affect the force?
- How does the orientation of the magnets affect the force?
- Will the force between the magnets always exist?

Part B

Use the table to select the properties you want to hold constant and the properties you want to change when you run your experiment to answer the question you chose in part A.

Select a box to identify whether each property should be held constant or changed in your experiment.

	Constant	Change
Magnet orientation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Magnet type	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Magnet size	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Distance between the magnets	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Part C

Use the Hanging Magnets Experiment simulation to run the experiment and gather observations to answer your question from part A.

First, select the Distance and Orientations. You must select an orientation for each magnet in each trial. Then, click Start to run the simulation.

- You will be limited to **three** rows of data.
- Be sure the final data table includes data that answers your question.
- Click on the trash can icon if you want to delete a row and generate new data.

Trial Number	Distance	Orientation of Magnet 1	Orientation of Magnet 2	Observations
1	Far	1	1	Magnets remain still
2	Closer	1	1	Magnets move toward each other
3	Closer	1	1	Magnets move toward each other

Additional Features of Online NGSS Sample Assessment Items



Choose Settings:

Review the following test settings. You can change the options, if necessary.

Science Sample Items

Literacy Assistance Tools

Text to Speech: Items and Stimuli

TTS Tracking: ON

Visual Assistance Tools

Color Choices: Black on White

Mouse Pointer: System Default

Streamlined Mode: OFF

Zoom: 1X

Concentration Assistance Tools

Line Reader: OFF

Masking: OFF

Settings allow for a variety of tools to meet the individual needs of students.

- Tutorial
- Mark for Review
- Notepad
- Score Item
- Highlight Selection
- Strikethrough

Features such as a calculator, zoom and notepad are available to assist students with the item interactions.

The **Periodic Table** is available for the Grade 8 and 11 NGSS assessments.

A **Tutorial** demonstrating each item interaction type is also available.

The **Score Item** feature allows for instant feedback to students.

Your response earned 5 point(s) of a possible 8

Scoring Criteria	Your Answer
The student selected "A- How does the distance affect the force" or "B- How does the orientation affect the force," indicating that they understand what questions are scientific and can be tested.	✓
The student selected "Distance Between Magnets" as the only variable to be changed in part B, if they selected "A" in part A, or selected "Magnet Orientation" as the only variable to be changed in part B, if they chose "B" in part A, indicating understanding of how to carry out a valid scientific experiment to determine the cause and effect relationships of magnetic interactions.	✓