Amplify NGSS Benchmark Assessments

The Next Generation Science Standards Benchmark Assessments by Amplify give you insight into how your students are progressing toward mastery of the standards ahead of high-stakes end-of-year assessments. The Benchmark Assessments measure and report on the three dimensions and performance expectations of the NGSS.

The NGSS Benchmark Assessments are given 3-4 times per year, depending on the grade level, and are delivered after specific units in the recommended Amplify Science scope and sequence.

Overview

Grades	Benchmarks per grade	Items per assessment
Grades 3–5	4 benchmarks per grade	14–15 items per assessment
Grades 6–8, Integrated	3 benchmarks per grade	25–26 items per assessment
Grades 6–8, Domain	3 benchmarks per grade	25–26 items per assessment

The NGSS Benchmark Assessments are:

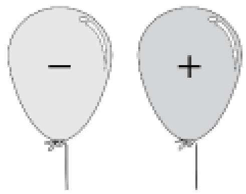
- Structured in two segments:
  - Segment A: a sequence of multiple choice questions
  - Segment B: a series of performance tasks, short responses, and multiple choice questions
- Designed to be administered in 90 minute sessions
- Delivered through:
  - PDF files
  - The Illuminate assessment platform
  - Integration with any QTI file-compatible assessment platform

Not sure whether QTI files are compatible with your assessment platform? Contact your school IT or assessment platform representative for more information.

For more samples and FAQs, please visit: **amplify.com/science/ngss-benchmarks-assessments**

9

Two balloons are charged with static electricity. Their charges are represented in the picture.



If the balloons are held near each other, what will happen to them?

a. Their charges will stay neutral.

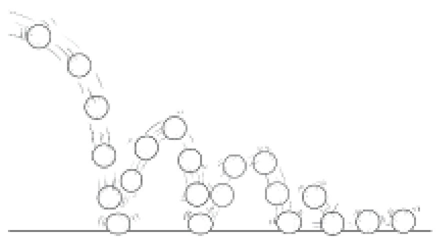
b. The charges will become opposites.

c. Opposite charges will cause the balloons to pull toward each other.

d. Same charges will cause the balloons to push apart from each other.

10

George bounces a ball across a playground. Each time the ball bounces, it goes less high in the air. When the ball reaches the middle of the playground, it only bounces half as high as it did on the first bounce.



What would most likely happen by the time the ball reaches the far side of the playground?

a. The ball would pick up speed.

b. The ball would soon stop bouncing.

c. The ball would stay in the air longer.

d. The ball would roll back to the student.

Example of Grade 3 Form A, Segment A

12

Imagine a crew wants to get inside the blocked cave. The boulder will need to be moved. First, the crew must identify the type of force that is acting on the boulder. There are different kinds of forces.

Type of Force	Definition
Friction	a force that holds back objects from sliding over each other when they are pushed or pulled
Push	a force that moves something away from you
Pull	a force that moves something toward you
Gravity	a force that pulls everything toward Earth's center

Use the correct word from the word bank to complete the sentence.

friction	gravity	a push	a pull

The boulder that is blocking the cave is being kept in place by ______________________ .

13

Based on the type of force that is acting on the boulder, how will the crew move it out of the way so that they can enter the cave? Describe why your idea would move the boulder, using concepts of balanced and unbalanced forces.

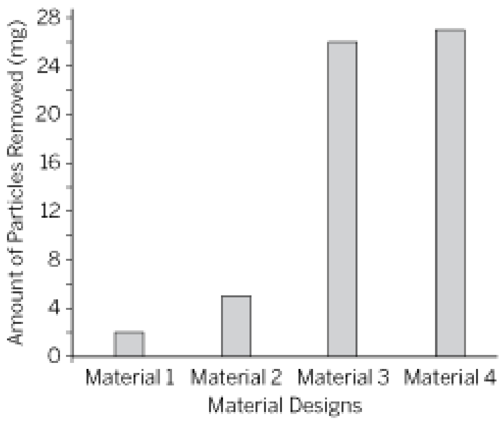
Example of Grade 3 Form A, Segment B

4

Factories often release harmful substances into the atmosphere. These substances pollute the air.

An engineer wants to reduce air pollution coming from a factory.

First, she focuses on pollution from ash. She places different materials over a model of a chimney to stop particles of ash from getting into the air. She measures the amount of pollution that each material catches and makes a graph of the results.



What should be the engineer's next step?

a. Find and fix any problems with Material 4.

b. Make and sell Material 1 to nearby factories.

c. Test Materials 1 and 2 on a real factory chimney.

d. Retest the materials with a different type of factory pollution.

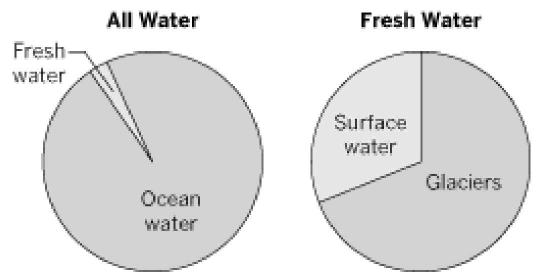
Example of Grade 5 Form A, Segment A

Grade 5 Examples

15

Very little water on Earth is fresh water. Over sixty-eight percent of fresh water on Earth is frozen in ice caps and in glaciers. Only about one percent of fresh water is in rivers, lakes, and groundwater.

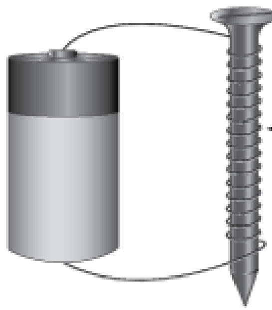
Study the circle graphs below. Write a description of how you would change each circle graph so that it correctly shows these data.



Example of Grade 5 Form C, Segment B

9

A student is investigating the strength of electromagnets she created using batteries, wire, and nails.



She uses two different-sized nails and varies the number of coils of wire around the nail to test to see how many paper clips each configuration can lift. She makes a data table of the results.

Trial	Length of Nail (in centimeters)	Number of Coils	Number of Paper Clips Lifted
A	11	5	1
B	8	5	1
C	11	10	3
D	8	10	2
E	11	15	4
F	8	15	3

The student hypothesizes that the number of coils has a cause-and-effect relationship on the strength of the magnetic devices she made. Which would be the **best** way for the student to test the devices to be sure that her hypothesis is accurate?

a. She should give the devices the same number of coils and retest them.

b. She should increase the distance between the devices and the paper clips.

c. She should repeat the same tests on each device again to collect more data.

d. She should use just one length of nail and test more numbers of coils, including 0 coils.

Example of Grade 8, Domain, Form B, Segment A

16

You use objects of different mass, as shown in the table, in a collision of Object A with Object B.

Trial #	Mass of Object A (kilograms)	Acceleration of Object A (meters per second squared)	Mass of Object B (kilograms)
1	0.1	4.0	0.2
2	0.2	2.2	0.6
3	0.3	2.4	0.1
4	0.4	1.9	0.7
5	0.5	1.2	0.3

Part A – In which trial will Object B travel the fastest?

a. Trial 1
b. Trial 2
c. Trial 3
d. Trial 4
e. Trial 5

Part B – Why did you choose this answer?

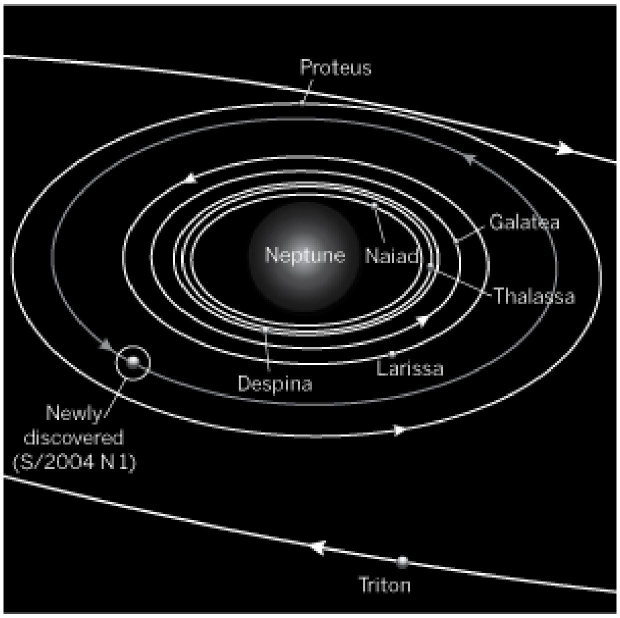
a. The acceleration of Object B = $\frac{F_A}{m_B}$, where F_A = the force exerted by Object A and m_B = the mass of Object B.
b. The acceleration of Object B = $A_A \times m_B$, where A_A = the acceleration of Object A and m_B = the mass of Object B.
c. The acceleration of Object B = $\frac{F_A}{m_A}$, where F_A = the force exerted of Object A and m_A = the mass of Object A.
d. The acceleration of Object B = $F_A \times m_B$, where F_A = the force exerted by Object A and m_B = the mass of Object B.

Example of Grade 8, Domain, Form A, Segment B

3

Neptune is known to have 14 moons, and their gravitational fields all interact as they orbit the distant planet.

NEPTUNE'S 8 INNER MOONS



An astronomer wants to make a computer model to predict the effect of gravitational forces between Neptune and its moons and how they in turn affect their location as they move through their orbits. The force of gravity is dependent on mass and the distance between the masses.

What data must be incorporated into the model that will best represent the gravitational forces between Neptune and its moons and the effect on their motion?

a. the mass and diameter of Neptune and each moon

b. the mass and distance between Neptune and the sun

c. the mass and distance between Neptune and each moon

d. the mass, speed, and diameter of Neptune and each moon

Example of Grade 8, Integrated, Form A, Segment A