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Effective Uses of Technology for Measuring Challenging Content in Classroom-Embedded Formative Assessments:

What Works for English Learners

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Policy Context

- Meaningful ACCESS
  - Access to language programs
  - Access to core content curriculum
  - Access to materials including content curriculum **and assessments**

Current Assessment Context

- New College and Career Readiness Standards
  - Common Core State Standards
  - Next Generation Science Standards

- New state-level computerized content assessments
  - Smarter Balanced Assessment Consortia
  - Partnership for Assessment of Readiness for College and Careers (PARCC)

*New standards are **more** challenging, yet new assessments have not changed enough and offer more limited response mechanisms*

Formative Assessments

- The Common Core and Next Generation standards encourage the use of ongoing classroom-embedded, formative content assessments to help students learn.

- These include
  - end-of-topic or end-of-unit tests from textbooks or online
  - worksheets and teacher built tests
  - strategies teachers use in the classroom to collect information from students, for instance through observations or during projects.

Think About What Technology Can Do…

- Technology can fundamentally improve the measurement of challenging content knowledge and skills for ELs so they don't fall behind or get tracked in remedial coursework.

- How?

  By making use of multi-semiotic representations to primarily convey meaning in addition to using text.

  By offering novel response mechanisms.

Why Bother with Multisemiotic Representations?

Students with literacy and language challenges ARE learning complex content in their classrooms.

How?

By using multiple modalities students and their teachers have learned to successfully convey content that is beyond the students' language proficiency.

This means successful assessment adaptations need to include ways to:

- convey meaning *to* the student
- convey meaning *from* the student

These adaptations may be useful for other students as well.

What Does This Mean for Content-Embedded Assessment?

Properly constructed, these methods can

- Broaden how we present the problems.
- Broaden how students are allowed to respond.
- Broaden our understanding of how students conceptualize knowledge and use skills.

Usually it is best if multiple avenues of access are built into each of the tasks at each of these points.

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Conveying Meaning in Formative Assessment Contexts

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Formative Assessment Items

- The next two slides show typical item examples that may or may not be used with accommodations. These slides are from the state-consortia tests; however they are similar to those found in end-of-unit tests and online.

ONPAR™ Example: Smarter Balanced

← BACK TO SAMPLE ITEMS HOME | VIEW MORE MATHEMATICS SAMPLE ITEMS | ABOUT THIS ITEM

Smarter Balanced Assessment Consortium

Mathematics | English Language Arts / Literacy

Feedback and Support
Send an Email

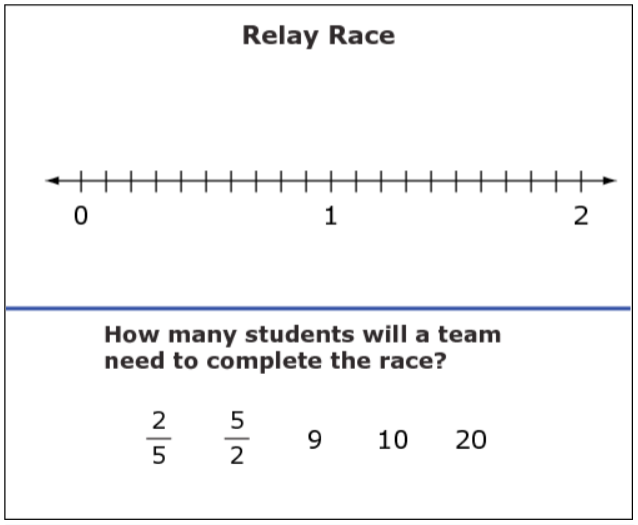
BACK NEXT ITEM SCORE

42959

Students are running in a relay race. Each team will run a total of 2 miles. Each member of a team will run $\frac{1}{5}$ of a mile.

How many students will a team need to complete the race? Choose the correct number.

You may use the number line to help find your answer.



Smarter Balanced Assessment Item: http://sampleitems.smarterbalanced.org/itempreview/sbac/index.htm

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Example: PARCC

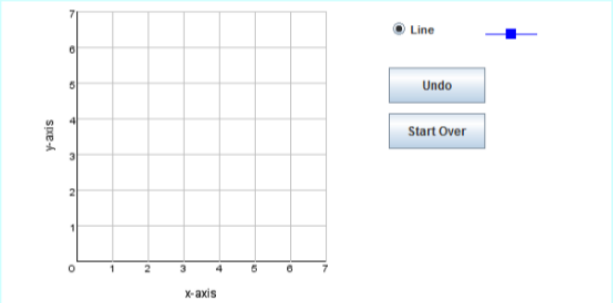
Part A

Each row of the table identifies a line containing a pair of points. Indicate whether each line represents a proportional relationship between *x* and *y*.

You may use the graphing tool by selecting two points. The line containing the two points will be automatically drawn. You can reset the tool by clicking "Start Over".

Be sure to indicate whether each line represents a proportional relationship or not by selecting the appropriate box in the table.

Line	Proportional Relationship	Not a Proportional Relationship
Line 1 containing (1, 3) and (2, 3)		
Line 2 containing (1, 2) and (2, 4)		
Line 3 containing (3, 1) and (6, 2)		
Line 4 containing (0, 2) and (5, 4)		
Line 5 containing (4, 4) and (5, 5)		



PARCC Sample Item:
http://parcconline.org/sites/parcc/files/PARCC_SampleItems_Mathematics_G7ProportionalRelationships_081913_Final.pdf

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Paint

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Response Mechanisms in Assessment Contexts

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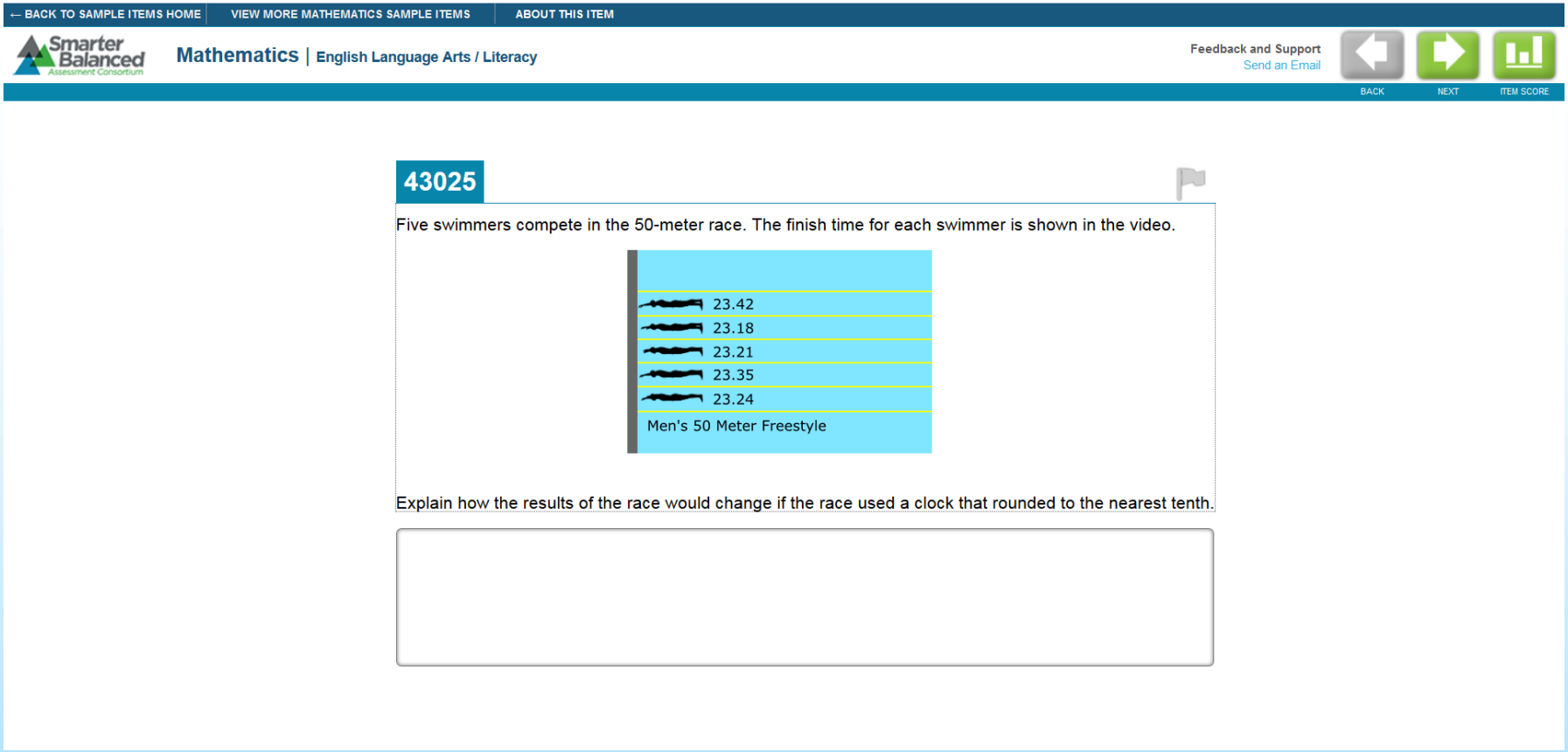
ONPAR™ Response: Smarter Balanced



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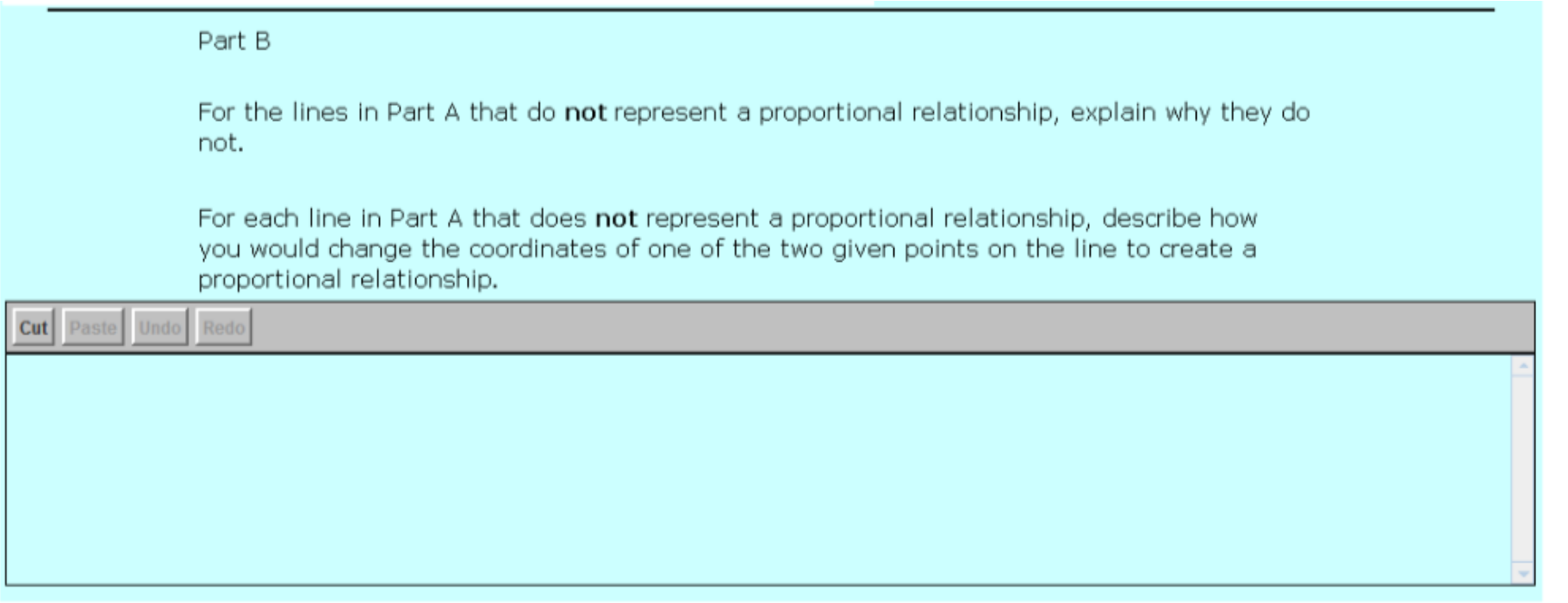
Response: PARCC



PARCC Sample Item:
http://parcconline.org/sites/parcc/files/PARCC_SampleItems_Mathematics_G7ProportionalRelationships_081913_Final.pdf

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The ONPAR approach to response mechanisms

Visual Representations

Language

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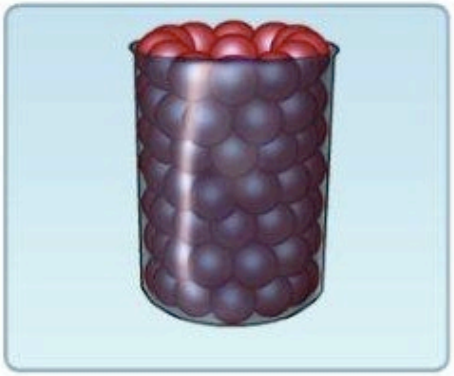
Show how to estimate the number of marbles in the jar.



?

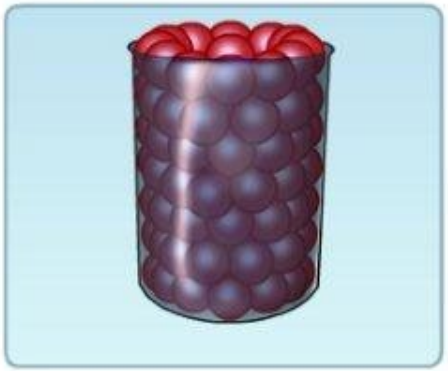
?

GO

Question: 1 of 1

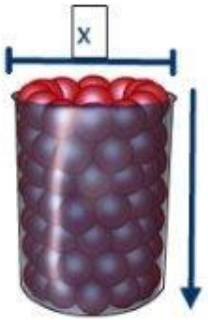
Show how to estimate the number of marbles in the jar.

?



Count the number of marbles on the top of the jar, then multiply by the amount of

rows of marbles in the jar

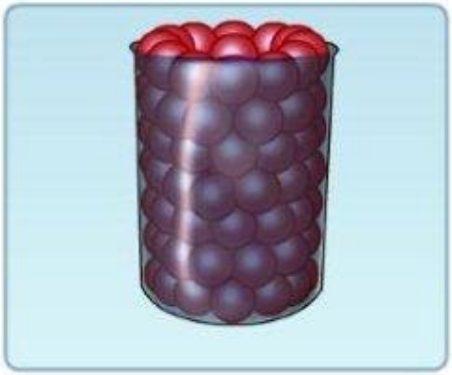


GO

Question: 1 of 1

Show how to estimate the number of marbles in the jar.

?



12 marbles per layer

6 layers

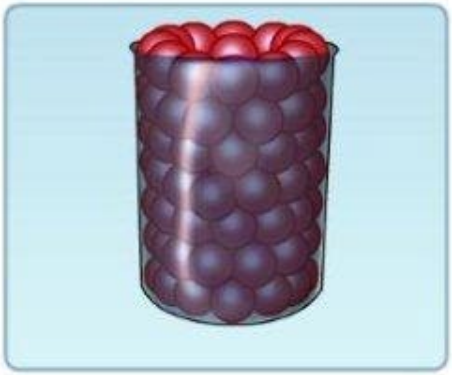
12*6 = 72

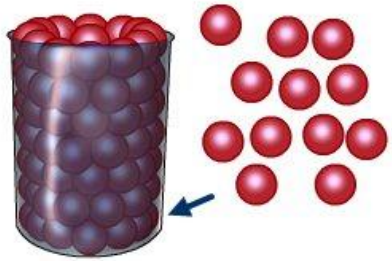
GO

Question: 1 of 1

Show how to estimate the number of marbles in the jar.

?





12 marbles on the bottom row

there are about 7 rows in the jar

12x7=84 marbles

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Scientific Models

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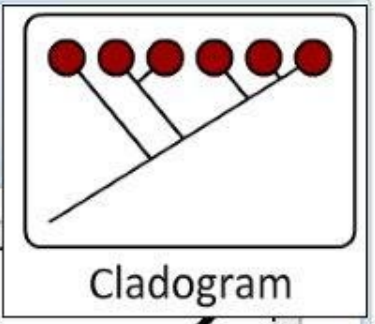
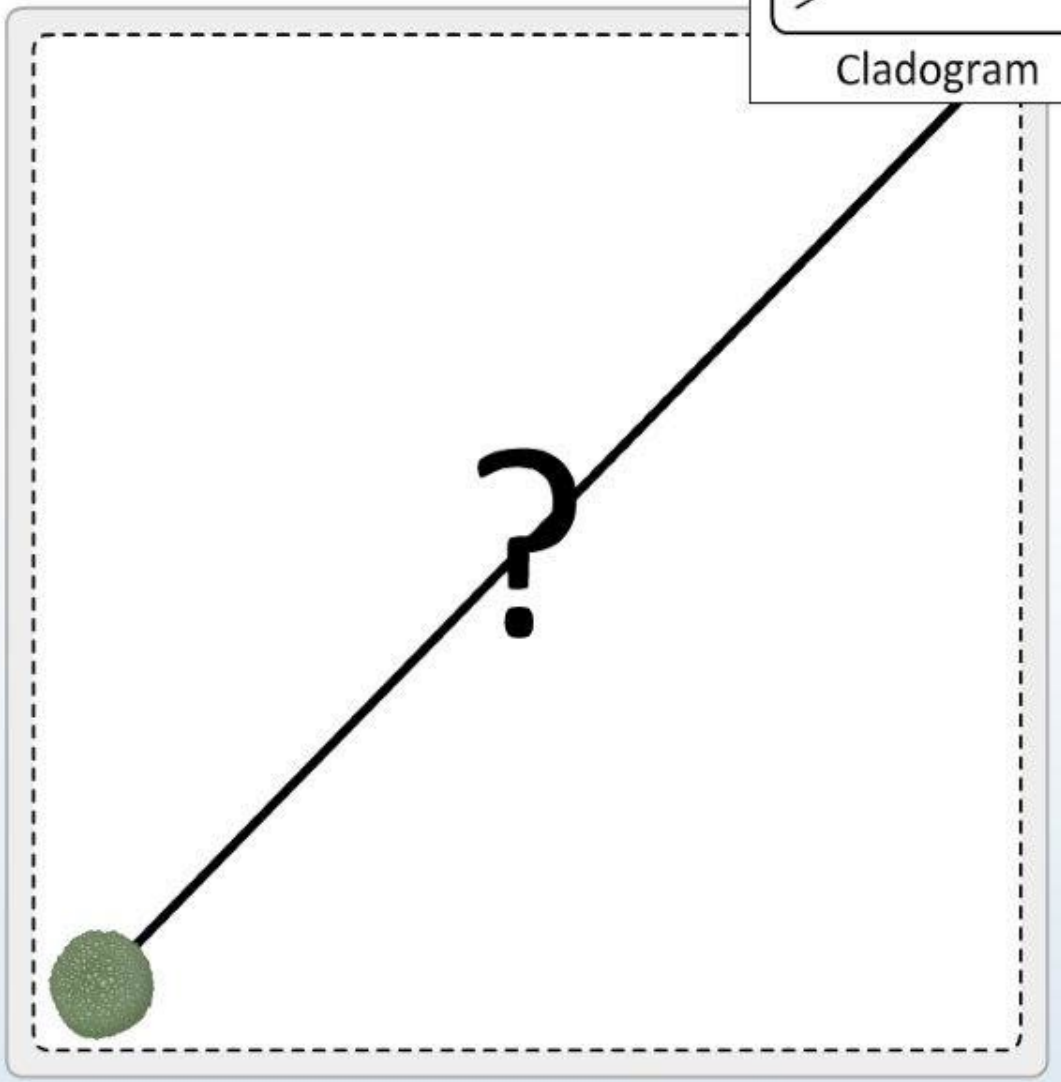
Use the amino acid differences to make a cladogram for the bacteria.



	Bacteria	Position 11	52	79
Given		W	E	K
New		V	P	R
New		V	E	R
New		W	E	R
New		V	E	R



Scene: 01 of 01

Thank you

Draw the Lewis structures for H_2O, CO_2 and CH_4.

?

H C O

– I

= II

≡ III

· : ·· ∴

H_2O	CO_2	CH_4
?	?	?

English

Draw the Lewis structures for H_2O, CO_2 and CH_4.

?

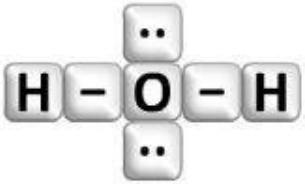
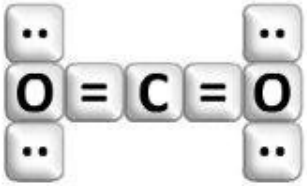
H C O

– I

= II

≡ III

· : ‥ ⁚

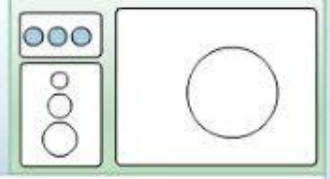
H_2O	CO_2	CH_4
		

Question: 1 of 1

Scene: 2 of 3

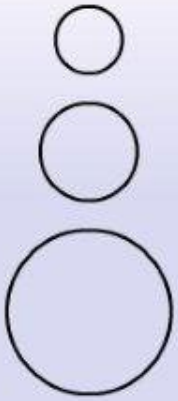
English

Make a Bohr model of a helium atom.

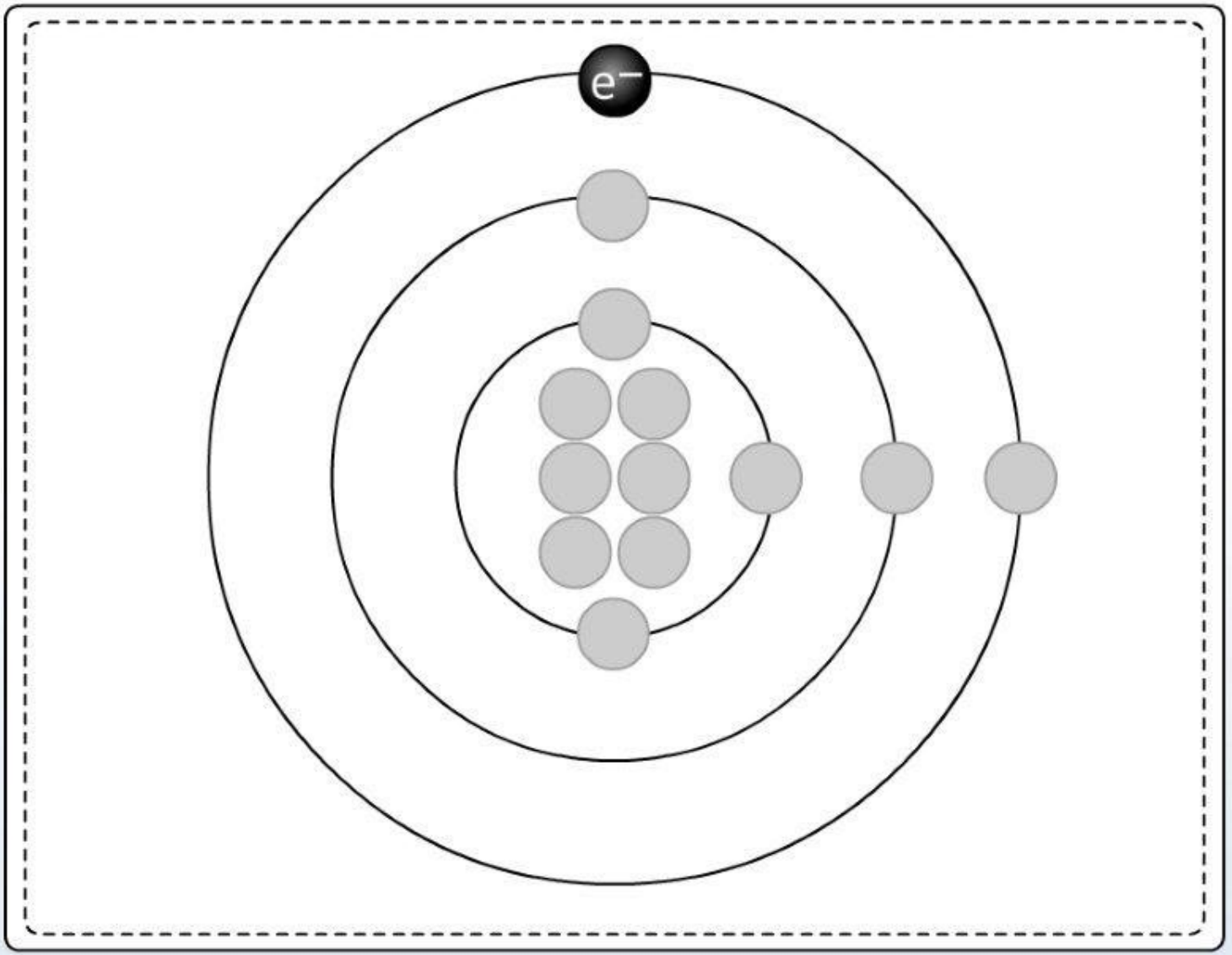


Particles

Orbits



?


e⁻

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Supported Language

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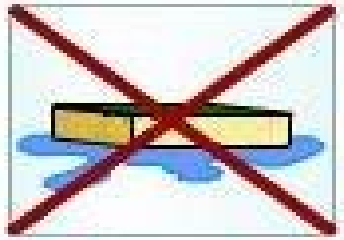
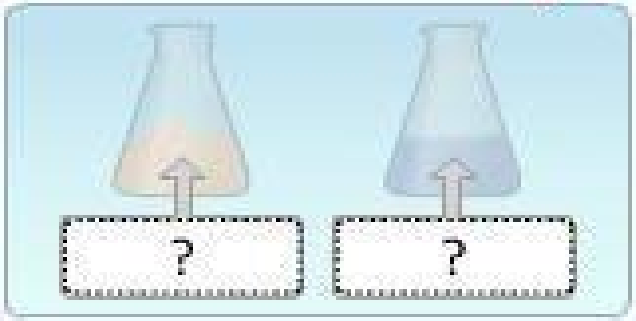
Explain your answer.



salt
sand
water
filter
absorbs
does not absorb
dissolves in
does not dissolve in
floats in
sinks in



Because

? ? ?

and

? ? ?

Question 1 of 1

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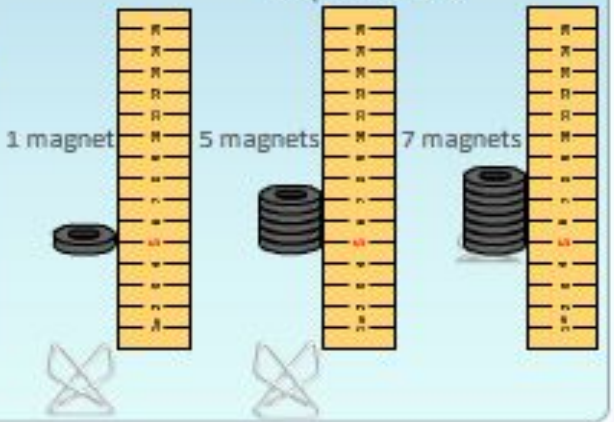
The big paperclip is heavier than the small paperclip. Explain.

Experiment 1

Magnets	Maximum distance
1	3 cm
3	6 cm
5	8 cm

Experiment 2



1 magnet

5 magnets

7 magnets

lifts

does not lift

lifts

does not lift

3 cm

5 cm

6 cm

8 cm

? ? at ?

but

? ? at ?

Question: 1 of 1

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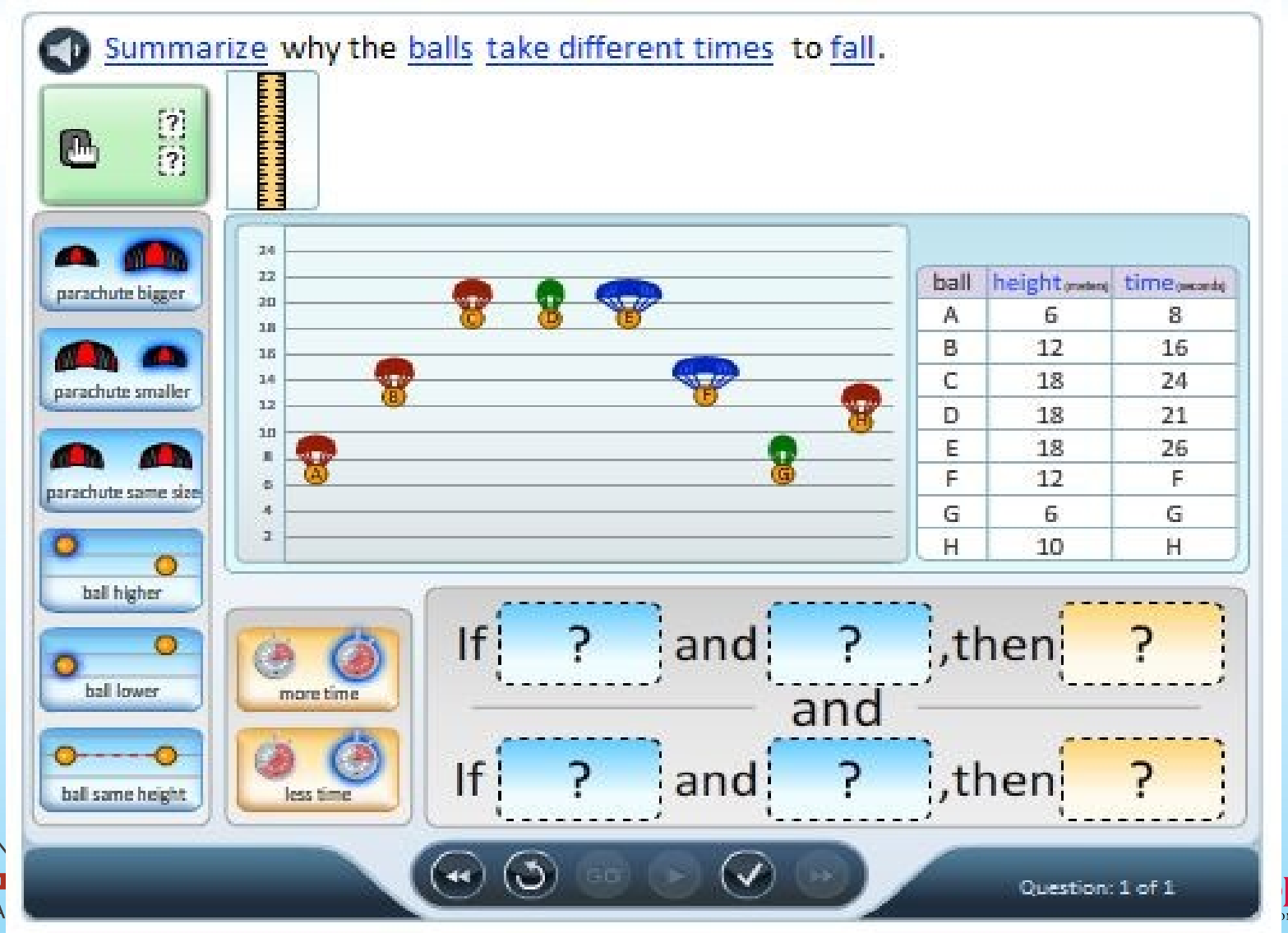

ball	height (meters)	time (seconds)
A	6	8
B	12	16
C	18	24
D	18	21
E	18	26
F	12	F
G	6	G
H	10	H

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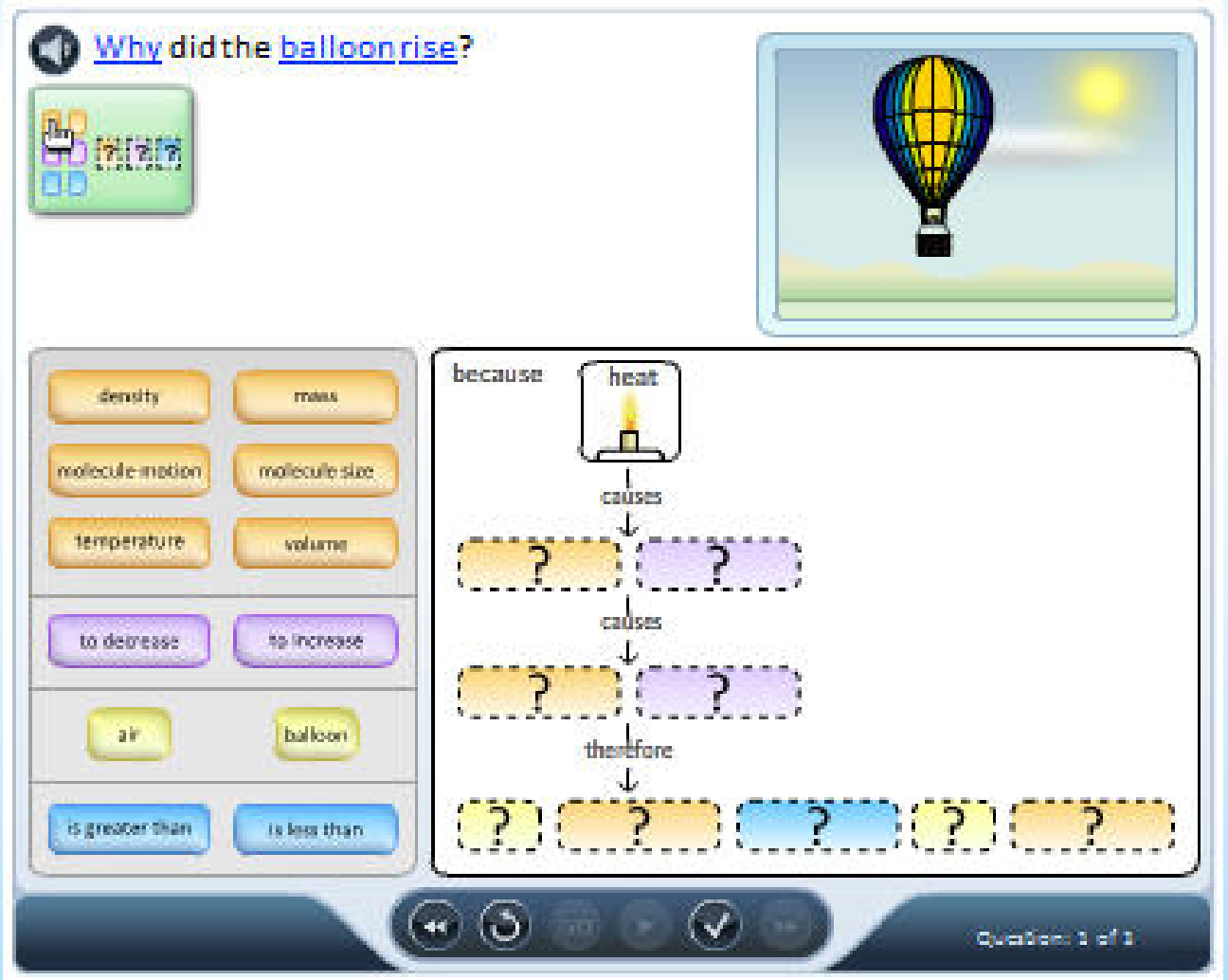

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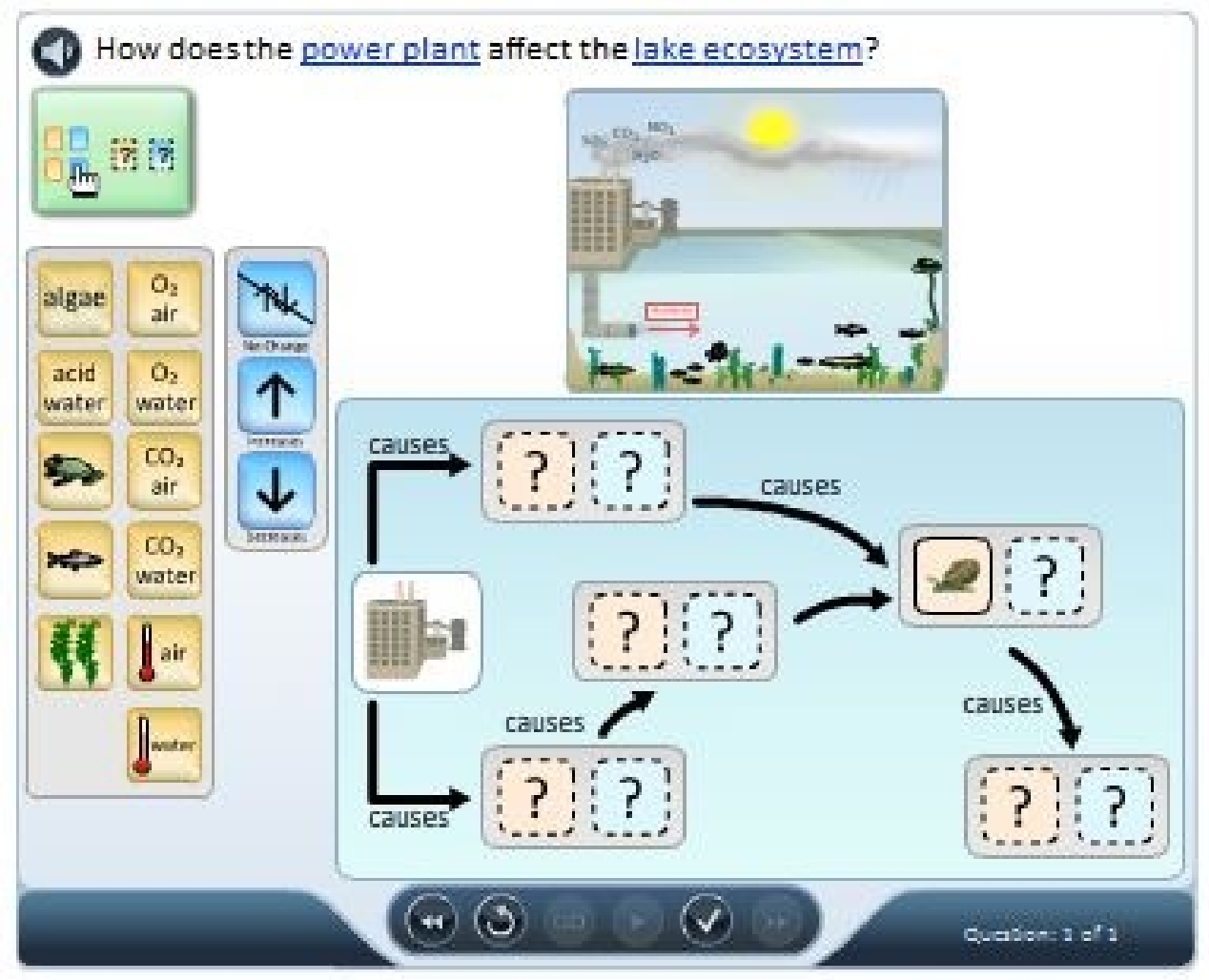

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Research

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Research-Based

- 4 federally funded grants, one currently underway
- 1 privately funded grant
- About 150 cognitive labs
- Experimental trials with randomized ONPAR and traditional forms
- ELs at different levels of English proficiency and native English speakers

ALL grants show ONPAR works, for **ALL** students, including English learners!!

Website and Contact info

Find more examples at: www.ONPAR.us

For more information about the tasks or to get involved:

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Laura Wright, Project Manager lwright6@wisc.edu