Wyoming
DEPARTMENT OF EDUCATION

PAWS
Science
Grade 8

Released Items With Data

Life Systems

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Portions of this work were previously published.

Printed in the United States of America.

Science Released Items with Data
Introduction Page / Data Definitions

This Released Items with Data document provides a subset of items from the 2015 administration of the PAWS test. The data for an item is on the page that follows that item. The following provides definitions for the data fields on the data page.

Item Information

Title: Title of the passage/stimulus the item belongs to

Domain: The reporting category of the state content standards

Benchmark: State content standard

Context: Main idea from subject matter

Item Code: Identification code assigned to the item

Admin: The year an item is administered

Item Type: The mode in which a student responds (MC means multiple-choice)

Correct Answer: The option letter (A, B, C, or D) that corresponds to the correct answer

Item Dok: The item's Depth of Knowledge designation, also called Cognitive Complexity;
1 - Recall and reproduction
2 - Skills and concepts
3 - Strategic and extended thinking

Total N-count: Number of students counted as taking the test in which the item appears during the listed administration (Includes item omissions)

Pvalue/Mean Score: For a multiple-choice item, the percent of students choosing the correct answer

Score Analysis

MC Row: Answer options available for students to choose from (including those who do not choose any option); an asterisk designates the correct answer

%Choosing Row: Percent of students choosing an option (or omitting)

Item Notes: Area where user can make notes

Nutria

Science students researched information about animals called nutria. The students discovered that nutria are large, semiaquatic rodents. Then the students placed the physical characteristics of nutria in the chart shown.

Physical Characteristics of Nutria

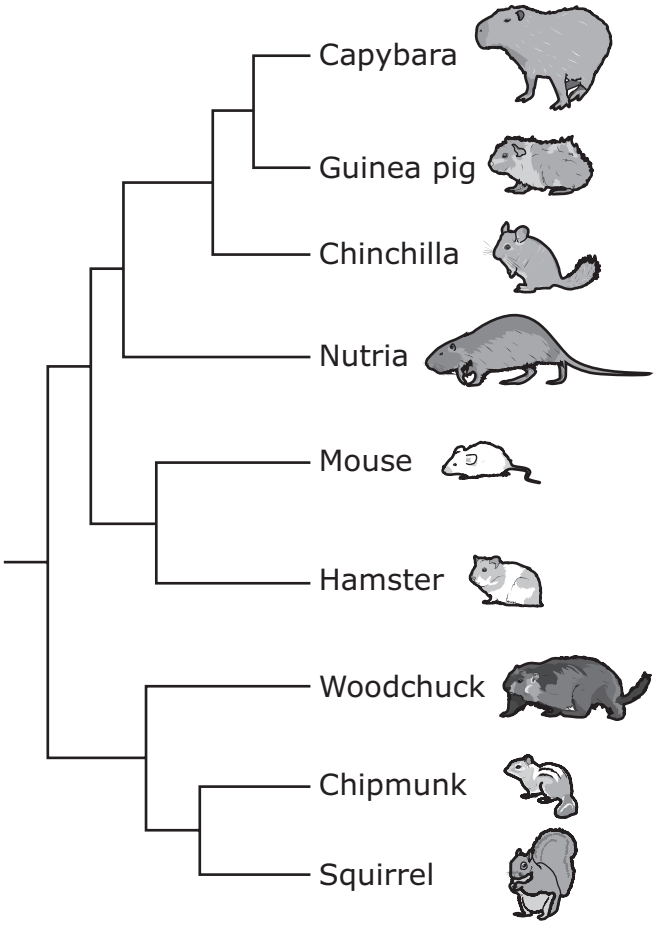
- Weigh between 5–7 kilograms
- Thick fur
- Long, thin tails
- Webbed feet
- Clawed toes
- Large front teeth used for gnawing

Nutria are herbivores that eat many types of aquatic plants. They build their nests, called burrows, by carving out areas along the banks of a body of water.

Nutria in Burrow

Nutria have many characteristics that are similar to other rodents. The evolutionary relationship among rodents is shown in the phylogenetic tree.

Evolutionary Relationship Among Rodents



00 **The fur on nutria is made up of a protein called keratin. Which cell structure produces this protein?**

A) Vacuole

B) Ribosome

C) Cell membrane

D) Endoplasmic reticulum

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.1 Levels of Organization in Living Systems: Students model the cell as the basic unit of a living system. They realize that all functions that sustain life act within a single cell and cells differentiate into specialized cells, tissues, organs, and organ systems.
Context:	A Cells and Cellular Processes
Item Code:	VH103014

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	B	1	674	0.45

Score Analysis					
MC	**A**	**B***	**C**	**D**	**Omit**
%Choosing	14.985	44.955	20.178	19.881	0

Item Notes

00 **What are the smallest living functional units of a nutria?**

A) Cells

B) Atoms

C) Organs

D) Tissues

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.1 Levels of Organization in Living Systems: Students model the cell as the basic unit of a living system. They realize that all functions that sustain life act within a single cell and cells differentiate into specialized cells, tissues, organs, and organ systems.
Context:	A Cells and Cellular Processes
Item Code:	VH103015

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	A	1	667	0.472

Score Analysis					
MC	**A***	**B**	**C**	**D**	**Omit**
%Choosing	47.226	44.078	4.198	4.498	0

Item Notes

00 **The students want to know whether female nutria have longer tails than male nutria. Which tool would the students <u>most likely</u> use to measure tail length?**

A) Balance

B) Microscope

C) Metric ruler

D) Magnifying glass

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.2 Reproduction and Heredity: Students describe reproduction as a characteristic of all living systems, which is essential to the continuation of species, and identify and interpret traits, patterns of inheritance, and the interaction between genetics and environment.
Context:	B Heredity and Biological Evolution
Item Code:	VH103011

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	C	1	667	0.91

Score Analysis					
MC	**A**	**B**	**C***	**D**	**Omit**
%Choosing	3.448	3.148	91.004	2.249	0.15

Item Notes

00 **Nutria from the same litter will often have characteristics different from each other. Which of these directly causes these differences?**

A) Combination of genes from both parents

B) Body cells dividing at different rates

C) Mutation of genes after birth

D) Birth order of siblings

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.2 Reproduction and Heredity: Students describe reproduction as a characteristic of all living systems, which is essential to the continuation of species, and identify and interpret traits, patterns of inheritance, and the interaction between genetics and environment.
Context:	B Heredity and Biological Evolution
Item Code:	VH103013

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	A	2	674	0.709

Score Analysis					
MC	**A***	**B**	**C**	**D**	**Omit**
%Choosing	70.92	10.386	14.985	3.561	0.148

Item Notes

00 **Which two animals share the <u>most</u> recent ancestor based on the phylogenetic tree diagram in the passage?**

A) Nutria and chinchilla

B) Squirrel and hamster

C) Capybara and guinea pig

D) Woodchuck and chipmunk

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.4 Diversity of Organisms: Students investigate the interconnectedness of organisms, identifying similarity and diversity of organisms through a classification system of hierarchical relationships and structural homologies.
Context:	C Interactions and Energy Flow
Item Code:	VH102999

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	C	2	667	0.556

Score Analysis					
MC	**A**	**B**	**C***	**D**	**Omit**
%Choosing	17.991	11.094	55.622	14.993	0.3

Item Notes

00 Which adaptations help nutria search for food underwater?

A) Clawed toes

B) Webbed feet

C) Long, thin tails

D) Large front teeth

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.5 Behavior and Adaptation: Students recognize behavior as a response of an organism to an internal or environmental stimulus and connect the characteristics and behaviors of an organism to biological adaptation.
Context:	C Interactions and Energy Flow
Item Code:	VH103016

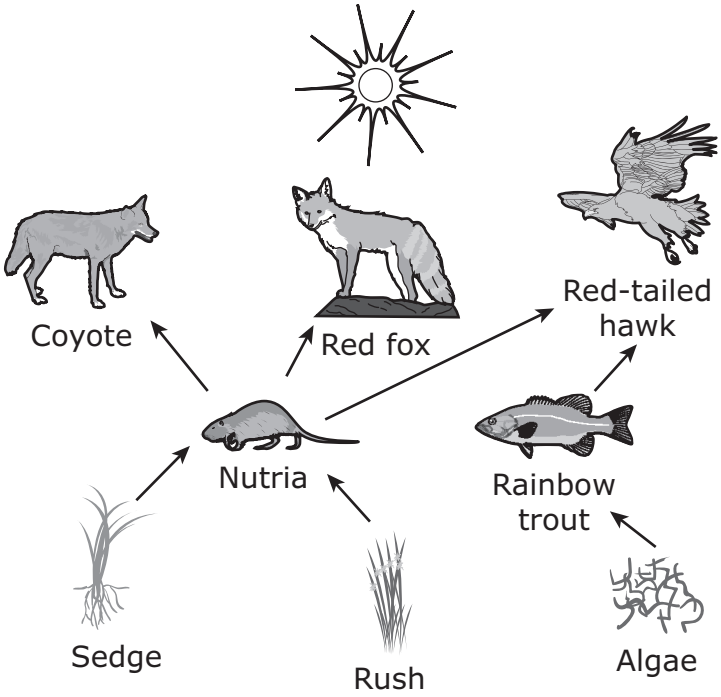
Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	B	2	667	0.832

Score Analysis					
MC	**A**	**B***	**C**	**D**	**Omit**
%Choosing	5.097	83.208	5.697	5.997	0

Item Notes

00 **The diagram shows a partial food web for a nutria in a river ecosystem.**

Partial Food Web for a River Ecosystem



Which organisms are categorized as primary consumers?

A) Rush and sedge

B) Coyote and red fox

C) Rainbow trout and nutria

D) Algae and red-tailed hawk

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.6 Interrelationships of Populations and Ecosystems: Students illustrate populations of organisms and their interconnection within an ecosystem, identifying relationships among producers, consumers, and decomposers.
Context:	C Interactions and Energy Flow
Item Code:	VH103010

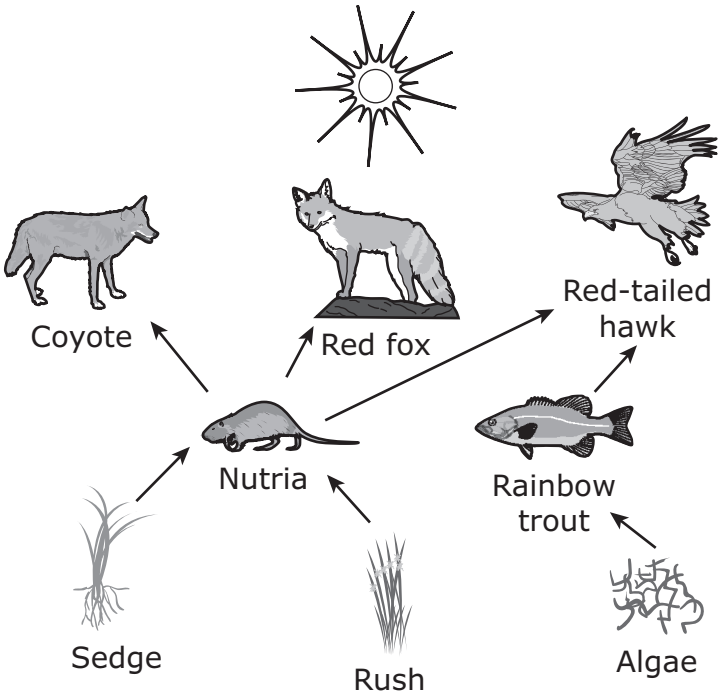
Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	C	2	674	0.426

Score Analysis					
MC	**A**	**B**	**C***	**D**	**Omit**
%Choosing	19.881	35.46	42.582	2.077	0

Item Notes

00 **The diagram shows a partial food web for a river ecosystem.**

Partial Food Web for a River Ecosystem



Which of these would be the primary source of energy for nutria in this ecosystem?

A) Sunlight

B) Coyote

C) Sedge

D) Algae

Item Information	
Title:	Nutria
Domain:	Life Systems
Benchmark:	SC8.1.6 Interrelationships of Populations and Ecosystems: Students illustrate populations of organisms and their interconnection within an ecosystem, identifying relationships among producers, consumers, and decomposers.
Context:	C Interactions and Energy Flow
Item Code:	VH103007

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2015	MC	C	2	667	0.735

Score Analysis					
MC	**A**	**B**	**C***	**D**	**Omit**
%Choosing	18.891	3.298	73.463	4.348	0

Item Notes

Glaciers Study

Students were studying Wyoming glaciers. They wanted to determine if the sizes of the glaciers have changed over time. In order to measure any changes, students looked at photographs of three glaciers in the same mountain range. They found photographs of the glaciers that were taken several years apart. By making careful measurements, they were able to determine the approximate areas of the three glaciers from each photograph. The table shows their data.

Area Results for Three Glaciers

Year of Photograph	Area (km^2)		
	Glacier 1	Glacier 2	Glacier 3
1967	0.26	0.21	0.06
1994	0.21	0.16	0.03
2006	0.21	0.16	0.02
Change in Area (1967–2006)	–19%	–23%	–67%

00 **As the glaciers change over time, the ecosystems near the glaciers will also change. Which statement most likely describes a change in the ecosystems near the three glaciers in this study?**

A) The glaciers provide an increasing amount of energy to producers over time.

B) Less habitat is available for producers after predator populations increase.

C) Less energy is available for producers as consumer populations decrease.

D) The habitat once covered by the glacier is now available for producers.

Item Information	
Title:	Glaciers Study
Domain:	Life Systems
Benchmark:	SC8.1.6 Interrelationships of Populations and Ecosystems: Students illustrate populations of organisms and their interconnection within an ecosystem, identifying relationships among producers, consumers, and decomposers.
Context:	C Interactions and Energy Flow
Item Code:	VF407161

Admin:	Item Type:	Correct Answer:	Item Dok:	Total N-count:	Pvalue/Mean Score:
Spring 2013	MC	D	2	658	0.388

Score Analysis					
MC	**A**	**B**	**C**	**D***	**Omit**
%Choosing	15.35	25.076	20.365	38.754	0.456

Dif Summary	
Group	**Dif Category**
Gender	A
Hispanic	
Native American	
Asian	

Item Notes