8TH GRADE SCIENCE



REVIEW

reporting category

Name _____ Class _____

Underline your strong TEKS and circle your weak TEKS:

8.IIA Relationships in Food Webs 7.IIC Natural Selection and Selective Breeding

8.IIB Competition for Biotic & Abiotic Factors 7.12B Human Organ Systems

8.IIC Environmental Changes 7.12D Plant and Animal Cells

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8.IID Human Dependence on Ocean Systems 7.I2F Cell Theory

7.10B Biodiversity 7.14B Sexual vs. Asexual Reproduction

7.10C Ecological Succession 7.14C Inherited Traits

7.IIA Dichotomous Keys 6.I2D Classification

Name:	Science Teacher:

Reporting Category 4: Organisms and Environments

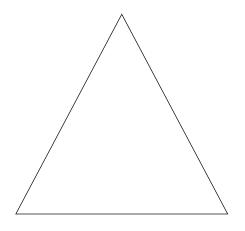
8.11A Relationships in Food Webs

Put the following organisms in order to create food chain. Label each trophic level (feeding level) as you go.

grasshopper hawk acorn snake

Answer: _____

Take the trophic levels from above and create an energy pyramid in the space below. Put a happy face next to the level that has the most available energy and a sad face next to the one with the least available energy. What percentage of the available energy is transferred from one level to the next?



Define each of the following relationships and give an example using the food web below:

Parasite-Host Relationship:

Predator-Prey Relationship:

Tick

Mouse

Beetle

Red Squirrel

Gypsy Moth
Caterpillar

Red Oak Tree

Gypsy Moth
Caterpillar

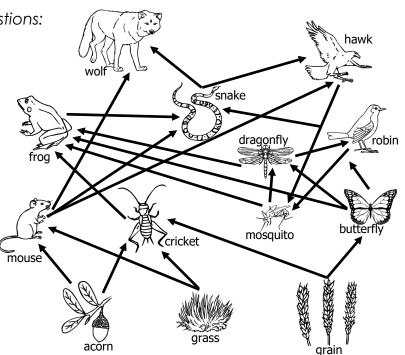
Producer-Consumer Relationship:

Use this food web for the following 7 questions:

Circle the producers. Put a box around the consumers.

Which organism feeds on the largest variety of producers?

Which organism feeds on the largest variety of organisms?



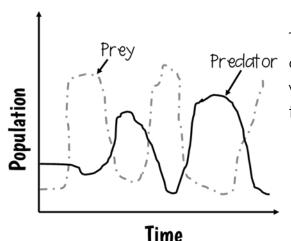
What would happen if the frog population were removed from this food web?

List all of the organisms that are classified as both prey and predator.

Identify at least one parasite-host relationship in this food web.

If the area were exposed to pesticides, how might the food web be affected?

- A. Mouse population would decrease. C. Hawk would no longer exist.
- B. Snake would begin to eat plants.
- D. Frog & robin population would decrease.



The graph to the left shows changes in the population of predator and prey over time. Which best explains why the population of prey increased near the end of the timeline shown on the graph?

- A. Fewer prey were reproducing.
- B. More predators moved into the area.
- C. Fewer predators were hunting the prey.
- D. More prey were competing for resources.

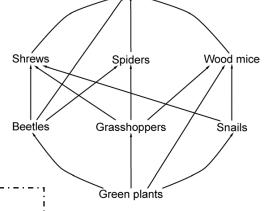
8.11B Competition for Biotic & Abiotic Factors

Classify the following factors of an ecosystem as either biotic or abiotic by placing a check in the appropriate box.

Factors of an Ecosystem	Biotic	Abiotic
Sunlight		
Air		
Organisms		
Decaying tree		
Rock		
Bacteria		
Water		
Frog		
Fallen leaf		
Temperature		
Soil		
Climate		
Phytoplankton		
Minerals		

How would a reduction in the snail population effect this ecosystem?

- A. It would cause decreased competition between spiders and owls.
- B. It would cause decreased competition between spiders and wood mice.
- C. It would cause increased competition between grasshoppers and beetles.
- D. It would cause increased competition between wood mice and shrews



Owls

Use this word b	ank to complete	the sentences bel	ow (not all word	s will be used):	
habitat	abiotic	population	compete	niche	
resources	resource	biotic			

Organisms in an ecosystem must	for resources such as water, sunlight,
and food. Because of competiti	n, may be limited or depleted in an
ecosystem	factors include water, light, and quality of the soil.
density can	ead to depletion.

One of the most aggressively invasive species on the planet, the red lionfish, was most likely introduced off the East Coast of the US and the Caribbean by humans and/or hurricane destruction. Information about the lionfish is provided in the table below.

Illian I	Lionfish Description		
	Length	5 - 45 cm	
	Defense mechanism	Sharp, venomous spines	
400	Habitat	Warm, marine waters	
	Life expectancy	5 - 15 years	
	Diet	Small fish, invertebrates, and mollusks	

Based on the table, native organisms will be negatively affected by competition with lionfish if they -

- A. hunt in fresh water.
- B. live on land.
- C. are longer than 45 centimeters.
- D. eat invertebrates.

8.11C Environmental Changes

Use the following passage to answer the question that follows.

Texas is home to nearly 2 million feral (wild) hogs. These hogs are highly adaptable and found in nearly every part of Texas. Some feral hogs are descendants of European wild hogs, which were originally brought to North America for hunting. Other feral hogs escaped from farms and ranches. Over many decades, the two types crossbred.

Wild hogs are omnivores and feed on nuts, berries, fruit, and the young of some animals. Hogs are able to find food more efficiently than other wild animals because of their highly developed sense of smell. Female hogs generally have two litters of one to seven young per year.

One explanation for the increasing wild hog population is -

- A. they are able to escape hunters.
- B. other wildlife populations have been reduced.
- C. food supplies have increased across the state.
- D. they are able to survive in a variety of environments.



Bird A: Insect-eating bill



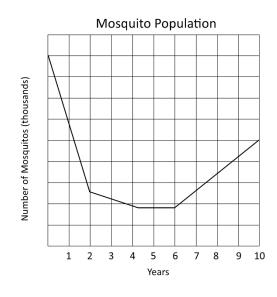
Bird B: Seed-eating bill



Bird C: Seed- and insecteating bill

There are three species of birds on an island. Bird A has a pointed bill for eating insects. Bird B has a heavy bill for eating seeds. Bird C has a sharp bill for eating seeds and insects. If the insect populations suddenly disappeared one season, which bird would probably be the least affected that season?

- A. Bird A
- C. Bird C
- B. Bird B
- D. Bird B and Bird C



This graph illustrates the effect of pesticides on mosquitoes. Pesticides are applied to the mosquito population every year. Answer the questions below to discuss how the introduction of pesticides into the environment affects the mosquito population.

a) How did the environment change?

b) Was this a short-term or long-term change to the environment?

c) How did the mosquitoes respond to these changes?

d) How would these changes be reflected in the traits that are passed to future mosquito populations?

Identify each of the following changes that have affected organisms and traits in future populations as either a short-term environmental change (S) or long-term environmental change (L).

An earthquake caused landslides and shifts in ground level, which changed the
course of rivers or flooded large areas. Earthquakes that occur in ocean areas can
cause underwater landslides that create tsunamis. The large waves can destroy
coastal ecosystems.

_ Tectonic plate movement has caused large changes in climate across the Earth, leading to the extinction or growth of many species.

_ Extended droughts caused by the El Niño/La Niña global weather cycles may cause individual species to decrease with the changing conditions.

_ After the large volcanic eruption of Mount St. Helens, much of the surrounding plant and animal life was destroyed.

_ Nitrogen fertilizer runoff into the ocean causes algae blooms, which kills fish and creates dead zones near large river deltas.

_ Changes in the Earth's tilt angle and direction are thought to control the natural climate changes that occur on our planet. Species adapt to these changes by changing camouflage colors, thickness of fur, habitat range, or hunting and migration behavior.

Four students categorized several different environmental changes as short-term or long-term changes.

Table A

Short-term	Long-term
Pollution of waterways	Deforestation
Loss of habitat	Fire
Early frost	Flood
Desertification	Hurricane

Table C

Short-term	Long-term
Flood	Desertification
Extinction	Fire
Early frost	Pollution of waterways
Deforestation	Disease

Table B

Short-term	Long-term
Disease	Deforestation
Loss of habitat	Early frost
Fire	Climate change
Desertification	Pollution of waterways

Table D

Short-term	Long-term
Flood	Desertification
Hurricane	Deforestation
Early frost	Climate change
Fire	Extinction

Which table correctly categorizes short- and long-term changes? Circle your answer above.

8.11D Human Dependence on Ocean Systems

Artificial reefs, such as old ships placed in the ocean by humans, affect the ecosystems of the ocean. How can these artificial reefs change the ecosystem?

- A. Artificial reefs provide less protection to small fish.
- B. Artificial reefs provide a new habitat for organisms.
- C. Artificial reefs provide more oxygen to organisms.
- D. Artificial reefs provide additional locations to drill for oil.



How might the information (right) most directly affect the ocean?

- A. Fish populations increase along the coasts.
- B. Runoff from coastal cities carries more pollutants.
- C. More artificial reefs appear off the coasts.
- D. Shark attacks decrease.

- More than half of the US population lives in a coastal county.
- Populations in coastal counties are expected to increase by 25 million people.
- Participation in fishing and recreational sports increases every year.

Runoff has increased in recent years because of human activities. Which activity has caused the greatest increase in polluted runoff?

A. Higher water usage C. City urbanization

B. Illegal dumping D. Irrigation

Place a check next to each correct example of how humans depend on ocean systems.

Examples
Transportation
Climate regulation
Source for natural resources
Excess carbon dioxide production
Economy
Food source
Controls moon phases
Recreation
Shelter

Match each example (left) with the correct description (right) that explains how humans have modified ocean systems by writing the letter of your answer in the blank.

_____ Plastics & other trash

A. Caused by drilling, natural disasters such as hurricanes, wrecked tankers, dumping, etc. Kills large amounts of fish, alters the marine food chain, and poisons wildlife that depend on the affected organisms for food.

_____ Sewage & runoff

B. Constructing beachfront homes, hotels, restaurants, and roads increases the amount of runoff, agricultural pesticides, and sewage entering the ocean waters. It also destroyed the habitats of beach-dwelling organisms. Dredging destroyed the natural habitat of the ocean floor, which removes the resources ocean life needs to survive.

____ Overfishing

C. Approximately 7 billion tons is dumped into the ocean each year. Wildlife gets entrapped in it and die from starvation.

____ Artificial reefs

D. The Coral Reef Conservation Act (CRCA) created in 2000 helps preserve coral reef ecosystems. The Endangered Species Act (ESA) passed in 1973 protects animals from extinction. The National Marine Sanctuaries Act (NMSA) enacted in 1972 designates important marine environments as sanctuaries for their environmental, historical, or cultural significance.

____ Coastal cleanup E. A human-made underwater structure, typically built to provide ocean animals and plants protection and a place to grow and reproduce. Often built with materials such as concrete or limestone, sunken oil rigs, or sunken ships.

____ Habitat destruction F. Includes septic tanks, cars, trucks, and boats in addition to larger sources such as farms, ranches and forest areas. Natural fertilizers (animal waste) from ranches and pesticides for spraying of crops can flow and enter the ocean. This introduces diseases and unhealthy chemicals into ocean waters. Farming can cause soil to erode and enter the ocean. All of these things can alter the food chain in the ocean.

_____ Laws & policies

G. Nearly nine million volunteers from 152 countries and locations have cleaned 145 million pounds of trash from the shores of lakes, streams, rivers, and the ocean on just one day each year. Companies such as Exxon and Shell Oil also have similar efforts several times a year.

____ Oil spills

H. The quantity of fish pulled from the ocean is greater than the amount that can be re-supplied by growth and reproduction. Depleting the population can drastically alter the marine food chain.

7.10B Biodiversity

Define biodiversity:

Which land biome has the greatest biodiversity?

Which of the following is most likely to have a positive effect on biodiversity?

- A. Increasing people's awareness of pollution.
- B. Replanting trees and other plants in a park.
- C. Recycling glass, aluminum, and plastic.
- D. Pouring oil onto the ground.

All of the following contribute to the decrease of biodiversity except-

- A. overfishing
- B. oil spills
- C. habitat destruction
- D. conservation of natural resources

7.10C Ecological Succession

Look closely at the table that shows the dominant flora at various stages of ecological succession.

Which stage represents the establishment of the pioneer organisms?

organisms			

Which stage represents the climax community?

Stage	Dominant Plant Life	
I	None	
2	Grasses	
3	Shrubs	
4	Loblolly pine trees	
5	Blackjack oak trees	

Which stage would result if a fire were to destroy the climax community?

Which of these correctly sequences the diagrams to show the process of ecological succession happening in an ecosystem?



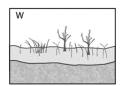
B. Y, X, W, Z

C. X, Y, W, Z

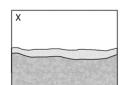
D. W, Z, Y, X

Use an asterisk (*) to mark the most stable stage pictured.

Why is it the most stable?







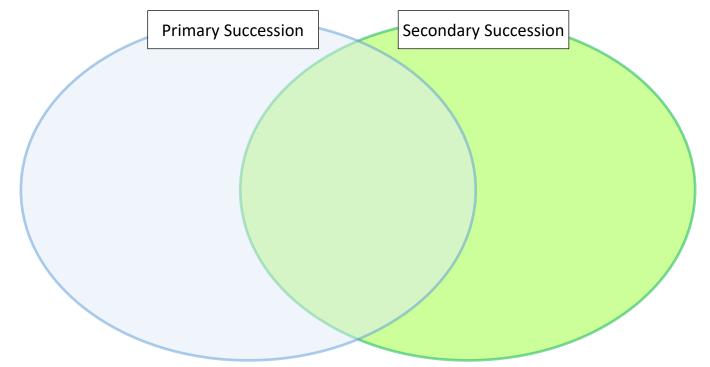




Compare primary succession and secondary succession. Write the number of the description in the correct location in the Venn Diagram below:

- 1. starts on bare rock
- 2. soil is already present
- 3. no previous life
- 4. occurs over a long period of time
- 5. would occur after land is cleared by humans
- 6. occurs in an area where organisms lived previously
- 7. would occur after a glacier retreats, exposing rock

- 8. shrubs and small trees grow
- 9. grasses are first plants to grow
- 10. pioneer species include lichens and moss
- 11. soil must be formed before most plants can grow
- 12. would occur after a forest fire
- 13. would occur after lava cools and hardens into rock
- 14. results in a stable climax community



7.11A Dichotomous Keys

Use the dichotomous key to correctly identify each leaf below.









Leaf B

Leaf C

1A	Has needles	Eastern white pine
1B	Does not have needles	go to 2
2A 2B	Leaf is teardrop shaped Leaf is not teardrop shaped	Balsam poplar go to 3
ЗА	Leaf has pointed tips	Sweet gum
3B	Leaf has semicircle shape	Ginkgo

A student discovers an arachnid with a segmented abdomen, long legs, and a tail with no stinger. The student uses the dichotomous key below to identify it. Which arachnid has the student found?

A. Daddy Long Legs	 a) Abdomen segmentedgo to 2 b) Abdomen not segmentedgo to 4
B. Scorpion	2. a) Abdomen with tailgo to 3
C. Wind scorpion	b) Abdomen without tailgo to 5
D. Whip scorpion	a) Tail with stingerScorpion b) Tail without stingerWhip scorpion
	a) Legs longer than bodyDaddy Long Legs b) Legs not longer than bodyWind scorpion
	5. a) Covered with spinesMite

b) Few spines.....Tick

7.11C Natural Selection and Selective Breeding

Which of the following is part of the theory of natural selection?

- A. Individuals that acquire characteristics will pass those characteristics on to their offspring.
- B. Most offspring of a species will survive to reproduce.
- C. Individuals within the same population have identical traits.
- D. Individuals that have favorable traits are more likely to survive and reproduce.

Biome	Climate	Vegetation
	Seasonal	Broad-leaved trees
Townson to Found		Shrubby undergrowth
Temperate Forest	Below freezing in winter	Lichens
	76 cm-203 cm annual precipitation	Mosses
	Hot days, cold nights	Thorny bushes
Desert	Less than 25 cm annual precipitation	Cactus
	Bitter cold	Lichens
Tundra	Little sunlight	Mosses
ranara	J	Grasses
	Less than 25 cm annual precipitation	Shrubs

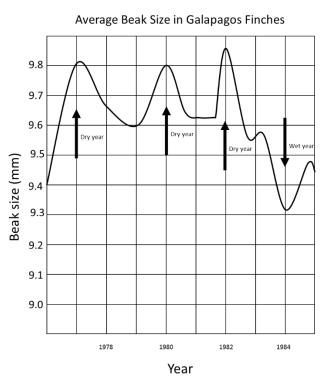
Which adaptation would most likely be evident in an animal living in the tundra biome?

- A. Large, wide ears with thin tissue
- B. Long legs to escape predators
- C. Long neck to reach food in high branches
- D. Thick fat layer that develops quickly

A farmer wants to increase the amount of food produced by corn crops. If the farmer selectively breeds the plants, for which trait should the farmer select?

- A. taller stems
- B. deeper roots
- C. resistance to pesticides
- D. more cobs on plant

The graph below shows the average beak size in Galapagos finches between 1976 & 1985.



When did the average beak size increase?

- A. Every 2 years
- B. Every 4 years
- C. During a dry year
- D. During a wet year

What would a larger beak size represent for the Galapagos finches?

- A. An adaptation
- B. A mechanism for selective breeding
- C. A trait that cannot be passed on to offspring
- D. A trait that is acquired during a bird's lifetime.

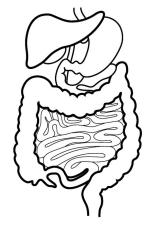
What was the greatest difference in beak size over this time period?

- A. About 0.1 mm
- B. About 0.3 mm
- C. About 0.5 mm
- D. About 1.0 mm

7.12B Human Organ Systems

Put the following organs in the correct order to sequence the movement of food through the digestive system. Number them 1-5.

 stomach
 esophagus
 small intestine
 mouth
larae intestine



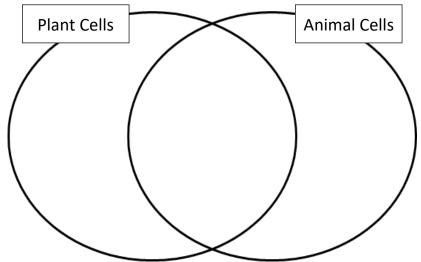
Complete the chart by writing the names of the missing organ systems. Use the word bank.

	,	8 8
Organ System	Function	Major Organs
	Transports materials	Heart, blood vessels
	Exchanges O ₂ and CO ₂ gases	Lungs, bronchi
	Breaks down food into usable form	Esophagus, stomach, intestines
	Removes wastes from blood	Kidneys, bladder, ureters, urethra
	Sends message throughout the body	Brain, spinal cord
	Regulates body functions; hormones	Adrenal glands, pituitary gland
	Protects and covers internal structures	Skin, sweat glands
	Produce offspring	Testes, ovaries
	Allows the body to move	Muscles
	Provides shape & support, protects internal organs, stores needed materials, produces blood cells, allows movement	Bones

WORD BANK
Circulatory
Digestive
Endocrine
Excretory
Integumentary
Muscular
Nervous
Respiratory
Skeletal
Reproductive

7.12D Plant and Animal Cells

Complete the Venn Diagram to compare the characteristics of plant and animal cells by using all of the words in the word bank.



,	
Word Bank	
cell membrane	DNA
cell wall	nucleus
chloroplasts	round shape
cytoplasm	square shape

Write the name of the correct organelle in the space provided. Use the word bank.

Organelle	Function	
	Decides what enters and leaves the cell.	
	Gel-like substance that all of the organelles float around in.	
	Contains the genetic material (chromosomes) that direct all cell activities.	
	Power-house of the cell; converts chemical energy in food into energy the cell can use	
	Stores material like water	
	Protects and supports the cell (found in plant cells only!)	
	Converts radiant energy from the sun into chemical energy (glucose); (found in plant cells only!)	

WORD BANK

Cell wall

Cell membrane

Mitochondria

Nucleus

Cytoplasm

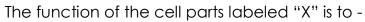
Chloroplast

Vacuole

Which cell organelle determines if an organism is an autotroph?

- A. Cell wall
- B. Chloroplasts
- C. Cytoplasm
- D. Mitochondria

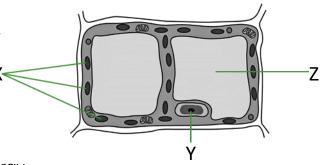
Use the diagram to answer the 2 questions below.



- A. control heredity of traits
- B. provide oxygen to the cell
- C. transform light energy into chemical energy
- D. allow substances to enter or leave the cell



- A. providing energy for the cell
- B. capturing sunlight energy
- C. storing water
- D. holding and protecting the chromosomes



Use the information in the table to answer the following 2 questions.

	Structures Found in Cells	Raw Materials Used	Products
Organism A	nucleus, cytoplasm, mitochondria	oxygen, glucose	carbon dioxide, water
Organism B	no nucleus, cell wall	sugar	carbon dioxide, water
Organism C	nucleus, cell wall, chloroplasts	carbon dioxide, water	sugar, oxygen
Organism D	nucleus, cell wall	organic matter, oxygen	carbon dioxide, water

Which organism in the table transforms sunlight energy into chemical energy?

- A. Organism A
- B. Organism B
- C. Organism C
- D. Organism D

Which of the organisms would be classified as prokaryotic?

- A. Organism A
- B. Organism B
- C. Organism C
- D. Organism D

7.12F Cell Theory

The 3 main components to the cell theory are shown at the top of each column in the table below. Read each of the following descriptions and match each one with the component to which it relates. Write the number of the description in the correct column.

- 1) Cells respond, reproduce, and extract energy.
- 2) Cells are the basic building blocks of life.
- The cell membrane regulates what enters and leaves the cell.
- Cells come from pre-existing cells.
- 5) Mitochondria give energy to the cells.
- 6) All living things contain at least one cell.
- 7) Cells divide to make new cells.
- 8) All plants are made of cells.
- Cell activities are controlled by the nucleus.
- 10) All animals are made of cells.

All organisms are composed of cells.	Cells are made from other cells.	Cells carry out similar functions.

7.14B Sexual vs. Asexual Reproduction

Use the following words and phrases to fill in the missing boxes in the table below:

- random combination of traits from two different sets of genetic material
- same as parent; one set of genetic information
- one

- two
- **different from parents**, but may contain some similar traits; each offspring is different from the other offspring
- each offspring is identical to parent; each offspring is identical to other offspring

Characteristic	Asexual Reproduction	Sexual Reproduction
number of parents		
genetic information		
diversity of offspring		







The variations observed in the butterflies are due to -

- A. pollination
- B. regeneration
- C. sexual reproduction
- D. asexual reproduction

The table below provides data on organisms and their characteristics. Based on the information in the table, which organism is most likely to produce only offspring that are all

genetically identical?

A. puffball

B. rose bush

C. large mouth bass

D. hydra

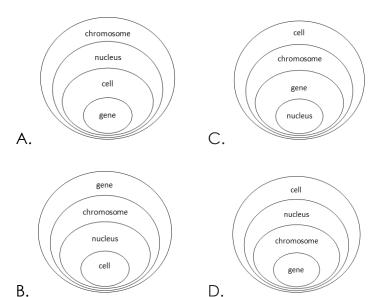
	Organism	Kingdom	Mode of Reproduction	Mode of Feeding
	Puffball	Fungi	Asexual & sexual	Decomposer
S	Rose bush	Plantae	Sexual	Photosynthesis
	Large mouth bass	Animalia	Sexual	Consumer
	Hydra	Animalia	Asexual	Consumer

7.14C Inherited Traits

The hereditary information in animal and plant cells is located on the chromosomes, which the cells store in the –

- A. vacuoles
- B. nucleus
- C. cytoplasm
- D. ribosomes

Which of the following models represents the genetic material that controls inherited traits?



6.12D Classification

Match each term with the correct definition. Write the letter of the definition next to each numbered term.

1.	prokaryotic

- ____2. eukaryotic
- ____ 3. unicellular
- ____ 4. multicellular
- ____5. autotrophic
- ____ 6. heterotrophic
- _____7. sexual reproduction
- _____8. asexual reproduction

- A. reproduction involving only one parent organism; offspring are identical to parent
- B. an organism that makes its own food
- C. made up of more than one cell
- D. single-celled organism that does not have a membrane-bound nucleus or organelles
- E. reproduction in which two parents contribute genes to form a new individual with different traits from the parents
- F. made up of only one cell
- G. an organism that obtains the energy it needs by feeding on other organisms
- H. organism made up of cells that have a membrane-bound nucleus and other organelles

Each of the following tables contains a kingdom name with various characteristics listed. Check all of the characteristics that correctly describe the kingdom listed.

Kingdom Bacteria
Eukaryotic
Unicellular
Cells do no contain a nucleus
Contains more than one cell
Only one parent involved in reproduction
Reproduces sexually

Kingdom Plantae
Autotrophic
Multicellular
Must obtain energy from other sources
Single-celled organism
Prokaryotic
Cells contain a nucleus

Kingdom Animalia
Composed of many cells
Eukaryotic
Unicellular
Must obtain energy from other sources
Cells do not contain a nucleus
Heterotrophic

Kingdom Fungi
Multicellular
Autotrophs
Prokaryotes
Cells contain a nucleus
Single-celled organisms
Gets its energy from other sources

Kingdom Archaea
Composed of more than one cell
Needs genetic material from 2 sources (egg & sperm) to reproduce
Lives in harsh or extreme environments
Unicellular
Prokaryotic
Cells contain a nucleus

Kingdom Protista
Gets its energy from another source
Unicellular
Autotroph
Cells do not contain a nucleus
Composed of more than one cell
Eukaryotic