

Student name: _____

Which is the correct sequence for levels of biological organization within a multicellular organism?

atom - molecule - organelle - cell - tissue

molecule - atom - organelle - tissue - cell

cell - organelle - atom - tissue - molecule

organelle - molecule - atom - tissue - cell

atom - organelle - molecule - cell - tissue

Which is the correct sequence for levels of biological organization occurring beyond an organism?

population - ecosystem - community - biosphere

community - population - ecosystem - biosphere

community - population - biosphere - ecosystem

population - community - ecosystem - biosphere

ecosystem - population - biosphere - community

All living organisms are

prokaryotes.

either unicellular or multicellular.

eukaryotes.

multicellular.

unicellular.

Organisms that extract energy from nonliving environmental resources are called heterotrophs.

decomposers.

parasites.

consumers.

producers.

You are sorting cards with pictures of organisms and their descriptions into groups. You would place the card with an osprey and the description "organisms that obtain energy by consuming other organisms" with cards for other

autotrophs.

plants.

heterotrophs.

producers.

photosynthesizers.

If you observed a newly discovered 'thing' and tried to decide if it might be alive, what would be the weakest distinction for life?

homeostasis

movement

structural organization

evolution

energy use

The four kingdoms included in the domain Eukarya are

Bacteria, Fungi, Plantae, and Animalia.

Bacteria, Protista, Plantae, and Animalia.

Protista, Fungi, Plantae, and Animalia.

Archaea, Bacteria, Plantae, and Animalia.

Archaea, Fungi, Plantae, and Animalia.

A major difference between prokaryotes and eukaryotes is that prokaryotes have cell walls while eukaryotes do not.

do not have a nucleus in their cells while eukaryotes do.

have a nucleus in their cells while eukaryotes do not.

are autotrophs while eukaryotes are not.

are not living organisms, while eukaryotes are.

If you were grading a set of exams dealing with the scientific method, which statement would lead to a student losing points?

It is a general way of answering questions with evidence.

It is a framework to consider ideas in a repeatable way.

It begins with observations.

It does not apply to problems encountered in everyday life.

It enables the testing of ideas.

Which statement about a hypothesis is incorrect?

It can be proven true.

It can be proven false.

It is a tentative explanation.

It is based on previous knowledge.

It must be testable to be useful.

In a scientific experiment, the investigator manipulates the _____ variable(s) to determine whether it causes another variable to change.

standardized

control group

dependent

independent

control group and standardized

In a scientific experiment, the investigator measures the response of the _____ variable(s).

independent

dependent

control group

standardized

dependent and independent

Which of the following is not a "control" in an experimental procedure?

a placebo

a known standard of comparison

a normal group

an experimental group

a "zero"-value group

A theory differs from a hypothesis in that a theory
has more supportive evidence than a hypothesis.

is broader in scope than a hypothesis.

has predictive power.

ties together many existing observations.

All answers are correct.

A structure consisting of tissues organized to carry out a specific function defines a(n)
organ.

cell.

population.

atom.

molecule.

In cleaning up after lab, you have to sort cards into boxes. You would put all of the below cards into a box marked "ecosystem" except

community.

biosphere.

populations.

organisms.

nonliving environmental components.

Asexual reproduction differs from sexual reproduction in that

asexual reproduction produces genetically diverse offspring.

asexual reproduction utilizes DNA from two parents to code for traits in offspring.

asexual reproduction occurs only in plants.

asexual reproduction produces offspring containing DNA from only one parent.

asexual reproduction only occurs in animals.

If you wanted to demonstrate homeostasis to a friend, you could use as an example
a population changing over time.

environmental conditions holding constant through time.

cells having enough water to survive.

plants and animals needing energy sources.

an organism maintaining nearly constant internal conditions.

What statement deals with an aspect of experimentation but with the incorrect explanation?

The larger the sample size, the more meaningful the results.

The smaller the sample size, the more meaningful the results.

A control group is an untreated group and provides a basis for comparison.

It is important to standardize aspects of an experiment that might affect the outcome, other than the independent variable.

All answers are correct.

You perform an experiment in which you take 16 pots of strawberry plants and give half of them 1 gram of ammonium nitrate per liter of water and the other half receive only water. Each group is then split in half again, and exposed to either 8 or 16 hours of light each day. You monitor the height of the plants for 4 weeks. You observe that plants grown in ammonium nitrate and 16 hours of light grow taller than no ammonium nitrate and 8 hours of light.

Which of the following is/are independent variable(s) in this experiment?

amount of ammonium nitrate and light

amount of water

amount of carbon dioxide

height of the plants and amount of light

height of the plants

Which of the following is/are dependent variable(s) in this experiment?

amount of ammonium nitrate and light

amount of carbon dioxide

amount of water

height of the plants

height of the plants and amount of light

In this experiment, the size of the pot is

an independent variable.

a dependent variable.

a standardized variable.

a placebo.

a control.

Ammonium nitrate is

an atom.

a molecule.

a cell.

a tissue.

a biosphere.

The proximate reason for the uptake by plants of nutrients like ammonium nitrate is

asexual reproduction.

sexual reproduction.

natural selection.

evolution.

homeostasis.

The leaf of a strawberry plant is

an organ.

a molecule.

an organelle.

a cell.

an organism.

The bacterium *Staphylococcus aureus* belongs to which domain?

Eukarya

Archaea

Prokarya

Protista

Bacteria

The bacterium *Staphylococcus aureus* has which of the following?

nucleus and ribosomes

DNA and nucleus

DNA and cell membrane

cell membrane and nucleus

None of the answer choices are correct.

Homo sapiens in which domain?

Archaea

Bacteria

Eukarya

Animalia

Protista

If you found an organism that was single-celled and had a nucleus, you would classify it as a member of the Archaea.

true

false

What did Charles Darwin predict after observing the 11-inch long nectaries of the *Angraecum sesquipedale* orchid in Madagascar?

the existence of a moth with a 10–11 inch long tongue

the existence of a competitor that also possessed especially long nectaries

the presence of very small bees that could fit into long nectaries

that the orchid must reproduce asexually

that the orchid was an evolutionary dead end and could no longer reproduce

In an experiment, Charles Darwin's prediction about long nectaries and long-tongued moths would be a(n)

standardized variable.

theory.

independent variable.

dependent variable.

hypothesis.

You want to test Charles Darwin's prediction that an orchid with long pollen tubes has a pollinator with long, thin mouthparts that can reach the bottom of the elongated nectar tube. You place nets over some orchids, which allows pollinators with small, short mouthparts to enter but prevents the entry of pollinators with long, thin mouthparts. Next, you compare the number of seeds produced by plants with and without the nets. In this experiment, seed production is a(n)

dependent variable.

hypothesis.

theory.

independent variable.

standardized variable.

What is the advantage to the Madagascan orchid of having an 11-inch long nectar tube?

It can produce nectar over a larger area and attract more pollinators.

It can collect more rainwater.

It can be pollinated easily only by the moths with long tongues.

It can collect more sunlight for photosynthesis.

It can trap insects as a source of nutrients.

What is the advantage of a moth having a very long tongue if an orchid has a very long nectar spur?

It is used to attract mates through sexual selection.

It can pollinate only one type of flower.

It makes flying more efficient.

It can be used to capture other flying insects for food.

It can reach nectar that no other pollinator can reach.

Pollination is a step of _____ in a plant.

sexual reproduction

asexual reproduction

development

metabolism

homeostasis

"Kingdom" is the most inclusive (broadest) taxonomic category.

true

false

Why isn't scientific inquiry foolproof?

Multiple interpretations of the data are possible.

Definitive answers may not exist.

Observations can be misinterpreted.

Unexpected conclusions are not always readily accepted.

All answers are correct.

The scientific method cannot be used to answer questions about immaterial and philosophical issues.

true

false

Which of the following questions cannot be answered by science?

What is the meaning of life?

Why is the sky the color blue?

What causes species' extinctions?

How did I start from only an egg and sperm?

Why is too much fatty food bad for me?

How do you know the computer you are working on is not alive?

It is not made of cells.

It does not maintain an internal consistency of water, solutes, and other components.

It cannot reproduce, asexually or sexually.

It cannot evolve.

All answers are correct.

Gravity is a theory because it is

a tentative explanation of an observation.

an untestable prediction.

a changeable element of experiments.

an opinion or hunch.

an encompassing explanation of a natural phenomenon that is well accepted.

In an experiment, a control and a standardized variable are the same thing.

true

false

Which of the following statements regarding sample size is true?

It refers to the number of individuals assigned to each treatment.

A larger sample size generally provides more credible results.

It is a critical step in the experimental design and can influence statistical significance.

All of the statements are true regarding an experiment's sample size.

You are reading a science article in a magazine and are trying to evaluate whether the argument is legitimate or “bad science”. Which of the following may indicate that this article is presenting a bad scientific argument?

It has been published recently.

The author lacks credentials.

It objectively measures the independent variable.

It uses scientific terminology.

Answer Key

Test name: Ch1_Biology The Essentials_4e

A

D

B

E

C

B

C

B

D

A

D

B

D

E

A

B

D

E

B

Section Break

A

D

C

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E

A

E

C

C

FALSE

A

E

A

C

E

A

FALSE

E

TRUE

A

E

E

FALSE

D

B