4th Grade Science Summer Assignment

Dear parents,

For our scholars to be better prepared for 5th grade science and their upcoming FCAT Science state assessment next school year, scholars will be completing a Science summer assignment.

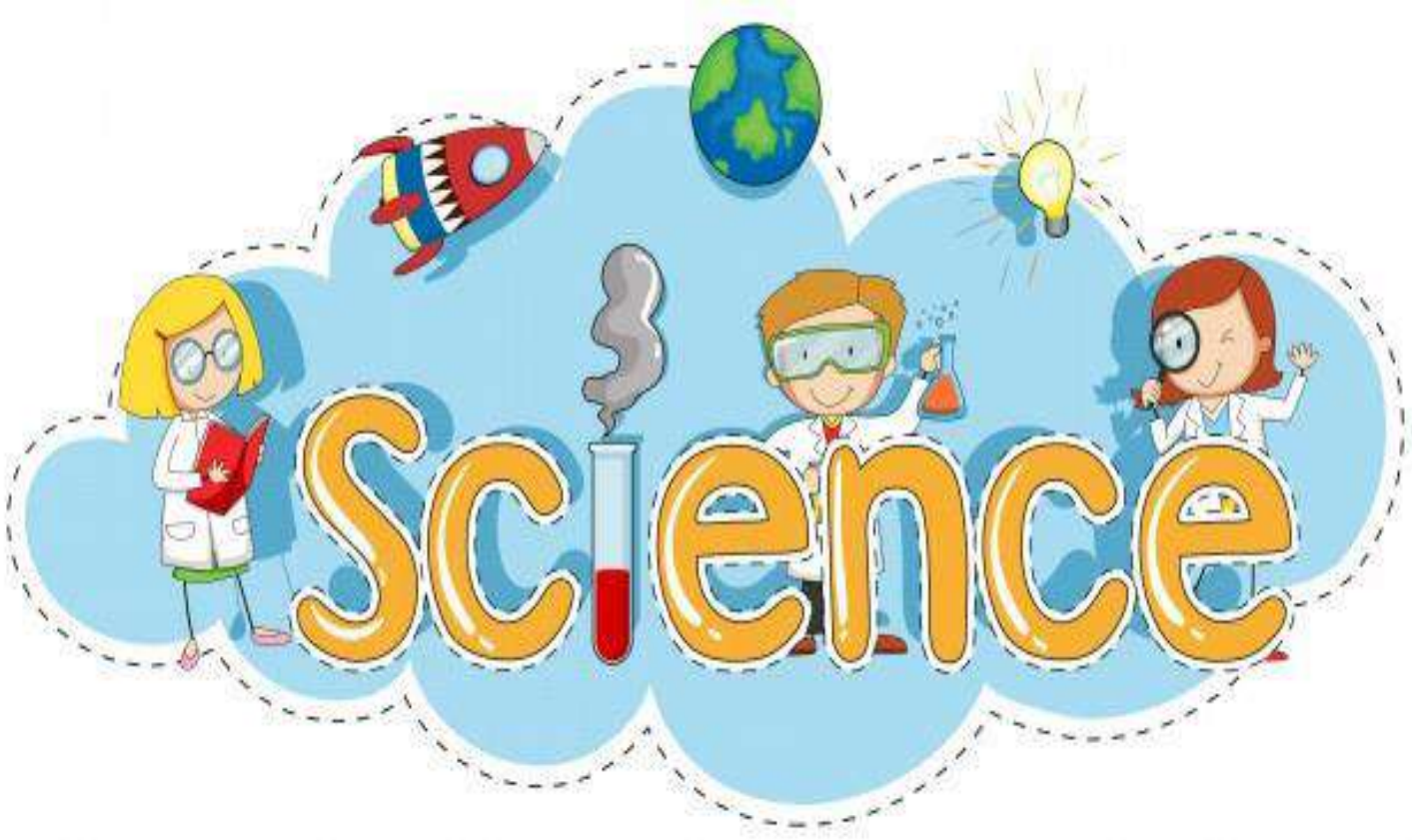
Scholars will have two options (**Option A or Option B**) for their summer assignment. For either option, they will be using their science notebooks for reference.

Summer assignments will be due to Ms. Tsilivakou on August 19, 2019; First day of school.

Thank you for your continued support in the education of our scholars.

Have a wonderful summer!!

Mrs. Hernandez



Please choose from the following two options:

Option A

Complete the attached packet. You may use your notebook or the internet for reference.

Option B

Animal observation project and report.

- ✓ Choose an animal to observe. This animal can be your pet or a family member's pet. It can also be a zoo animal.
- ✓ Do some background research on your animal. If you choose a pet, then observe your pet for at least 24 hours and write down all the behaviors you observe. If you choose a zoo animal use the internet to research the animal and its behaviors.
- ✓ Choose **ONE** behavior to observe and keep track of.
- ✓ Observe that behavior for ***2 minutes at 2 different times of the day***. For example, in the **morning** and in the **afternoon**.
- ✓ Write a report on your findings.
- ✓ Use the attached **"Animal Observation Report"** form:
  - Title
  - Question (or problem statement)
  - Background information
  - Hypothesis
  - Investigation Design Diagram
  - Ethogram (label and describe the behavior)
  - Procedure
  - Pictures
  - Data Graph
  - Data analysis (results)
- ✓ See attached sample report for help writing your report.

Title

The effect of time of day on habitat usage (on land v. in water) of Puffins

1

QUESTION

What is the effect of time of day on habitat usage? (On land versus water)

2

BACKGROUND INFORMATION

- **Puffins spend all of their time in the water during the winter months**
- **Puffins spends most of their time on land versus water**

3

HYPOTHESIS

- If the time of day changes, **then habitat usage (DV)** will be affected because **puffins are less active during the day** and **spend more time on land**. ***Therefore, as the time of day progresses, we will find more puffins in the water as they become more active.***

4

Investigation Design Diagram (ID)

Title: The effect of time of day on habitat usage (on land v. in water) of Puffins.
Question: What is the effect of time of day on habitat usage? (On land versus water)

Hypothesis: As the time of day changes, then habitat usage will be affected because breeding individuals are less active and spend more time on land during the day

IV: Time of day

Change in **independent** variable:	-Morning Session - Afternoon Session
Number of Observations:	-10 scans per trial -5 Minutes per scan (observation)

DV: Habitat Usage

Constants: Location, Sample Size, Scan time

5

Behavior	Code	Definition
Not in View	NV	The animal is not in visible
Land	L	Both feet on land, or if Puffin is airborne
Water	W	One or more of the puffins feet are in the water

Ethogram

Behavior Code

6

Procedure for data collection:

1. Locate the Puffin exhibit
2. Delegate roles in group; scanner, data recorder, timer, and digital recorder
3. Begin timing (timer says "Start")
4. At each 45-second interval, the timer says "Scan," which will signal that the scanner should start to count the puffins, from left to right, noting the number of puffins that are on land versus in the water
5. The scanner will announce how many puffins are on land versus in water to the data recorder
6. Data recorder scribes the count on the "animal behavioral data sampling methods" sheet
7. Repeat steps 3-6 for a total of ten scans
8. Rotate roles and repeat steps 3-7 for five more trials.

7

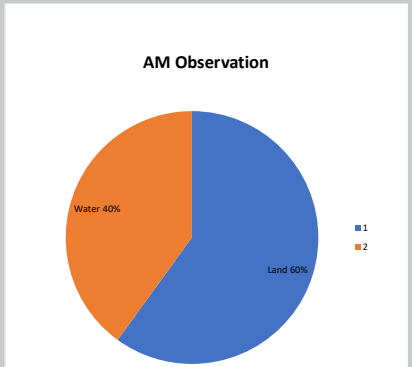


Pictures of exhibit/animals if needed to make ethogram clearer

8

Habitat Usage During AM Observation

- This pie chart shows the habitat usage of the puffins during the morning. As you can see majority of the puffin's time in the afternoon was spent more on land than on water. During the morning hours, every puffin was accounted for and visible.



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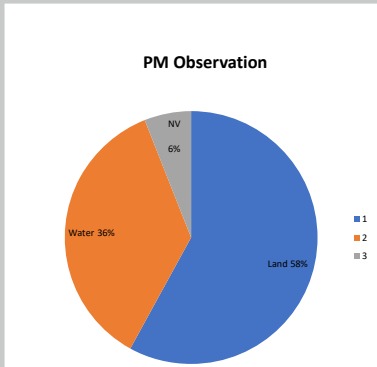
Habitat Usage during PM Observation

- This pie chart shows the habitat usage of the puffins during the afternoon. As you can see, more puffins were on land than in water . There were some Puffins that were out of visibility



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DATA ANALYSIS

What we saw was more **Puffins** on land than in water during morning and afternoon trials. In the afternoon session, there were some Puffins that were not visible where as in the morning, all Puffins were accounted for.

WILDLIFE CONSERVATION SOCIETY

urban advantage middle school science initiative

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ANIMAL OBSERVATION REPORT

Title of Report

Testable Question

Background Information

Hypothesis - The answer to the testable question

Procedure – Step by step record of what you did (number format)




Investigation Design Diagram	Ethogram

Graph-Visual representation of your data

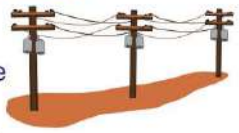
Data Analysis (minimum of 5 sentences)

Electricity and magnetism

Sci D

Name _____ Class _____ Date _____

1 A **transformer** can change high voltage electricity into lower voltage electricity. Why does electricity need to be changed to a **lower voltage**?

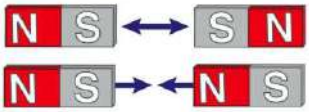


A so it is cheaper
B so it is safer to use
C so it is hot
D so it is dangerous

2 **Magnetism** is the property of attracting or repelling certain kinds of materials. What is the area around a magnet called?

A magnetic field
B magnetic space
C magnetic ground
D magnetic gap

3 What does the following picture show you about **magnetic poles** on magnets?



A like poles are neutral
B like poles attract each other
C like poles repel each other
D opposite poles repel each other

4 _____ **acts as a large magnet**, with its magnetic fields being strongest at its poles, which are not exactly at the North and South Pole.

A The moon
B Earth
C The sun
D Stars

5 What **tool** has a small **needle** that responds to the earth's magnetic field by always **pointing north**?

A thermometer
B scale
C hygrometer
D compass

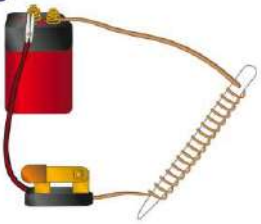
6 Why does a **compass needle** always point in a north/south direction?

A because of the earth's magnetic field
B because the needle is made of wood
C because of the weather conditions
D because needle is made of copper

7 The magnet hanging from the crane in the picture can be turned **"on" or "off"** by electricity. What type of **magnet** is it?

A permanent magnet
B flexible magnet
C electromagnet
D compass magnet

8 What is wrapped around the iron core of an **electromagnet**?



A coil of string
B coil of wire
C coil of clay
D coil of rubber

9 What is one way to make an electromagnet **stronger**?

A tighten coils
B loosen coils
C decrease the number of coils
D increase the number of coils

10 **Turbines** moved by wind, water, or steam are used to **turn** _____.

A electrical energy into chemical energy
B mechanical energy into electrical energy
C electrical energy into moving energy
D current energy into direct energy

Food webs/food chains

Sci D

Name _____ Class _____ Date _____

1 **All** living organisms on earth need _____ to live.

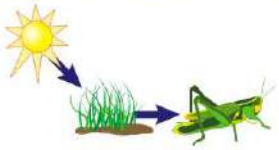
A energy
B grass
C soil
D sleep

2 What is the **main energy source** for all living things on earth?

A animals
B plants
C the sun
D rain

3 The process of energy being **captured** by plants from the sun and then transferred from one organism to the next in the food chain is called _____.

A food flow
B energy flow
C nutrient flow
D water flow

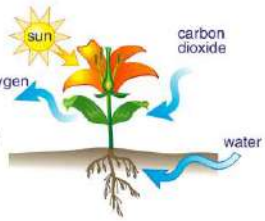


4 What are the two most important things our ecosystem needs in order to always have a **supply of energy**?

A sunlight and plants
B sunlight and soil
C plants and soil
D plants and trees

5 Plants use sunlight to **make their own food**. This process is known as _____.

A photosynthesis
B hypothesis
C production
D reproduction



6 _____ are organisms, such as plants, that **make their own food**.

A Herbivores
B Decomposers
C Consumers
D Producers

7 What do we call organisms that **eat other living things** in order to get energy?

A decomposers
B producers
C consumers
D processors

8 _____ get energy by eating **only plants**.

A Omnivores
B Herbivores
C Carnivores
D Producers

9 Organisms that get energy by eating **only other animals** are called _____.

A omnivores
B herbivores
C carnivores
D producer

10 An animal that eats **both** plants and other animals is a (an) _____.

A producer
B herbivore
C carnivore
D omnivore

Food webs/food chains

Sci D

Name _____ Class _____ Date _____

1 _____ get energy by eating **dead matter**, like dead plants and animals.

A Omnivores
B Carnivores
C Decomposers
D Herbivores

2 Decomposers break down dead plants and animals into nutrients that are added back into the soil. What organisms then **use those important nutrients** to grow healthy and strong?

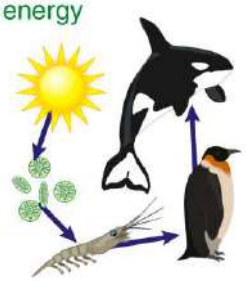
A plants
B hawks
C humans
D bears

3 _____ found in plants can be passed along from animal to animal through a **food chain**.

A Water
B Energy
C Soil
D Roots

4 In a **food chain**, energy is passed by an animal eating and _____.

A being eaten
B reproducing
C getting bigger
D sleeping



5 **All food chains** begin with energy received from the _____.

A rain
B moon
C sun
D soil

6 After the sun, the next link in every food chain is plants. Why are **plants** always next?

A All animals eat plants.
B Plants are green.
C Plants taste the best.
D Plants are the only organisms that can make food from the sun's energy.

7 In the following diagram, the arrows show the **transfer or flow** of _____ from one organism to the next.

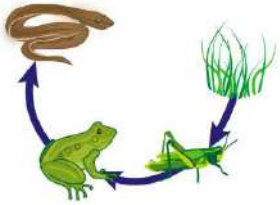
A energy
B water
C eggs
D air

8 As the energy is passed on from organism to organism along a food chain, the **amount of energy** becomes _____.

A uncontrollable
B more noticeable
C greater
D less and less

9 Which consumer is getting the **most** amount of energy in its meal?

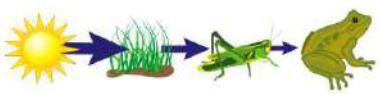
A grass
B frog
C insect
D snake



10 The **more** links on the food chain, the **more energy** each animal gets along the way.

True or false?

A true
B false



Food Chains & Food Webs

Sci D

Name _____ Class _____ Date _____

1 What is the **main energy source** for all living things on Earth? Circle it.

animals the Sun

plants rain

2 The **process** of energy being **captured** by plants from the Sun and then **transferred** from one organism to the next in a food chain is called _____ flow.

food water

energy plant

3 Draw a line to match terms to definitions.

consumers	organisms that make their own food
producers	organisms that only eat plants
herbivores	organisms that eat other living things to get energy

4 An animal that **eats both** plants and other animals is called a(n)

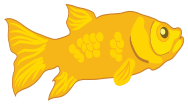
_____.

5 _____,

such as worms, **get energy by eating dead matter**, like dead plants and animals.

6 Circle the **missing organism** in this food chain.

Sun → grass → ? → frog



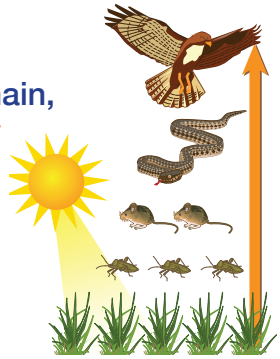
7 Organisms that get energy by eating **only** other animals are called _____.

carnivores herbivores

omnivores consumers

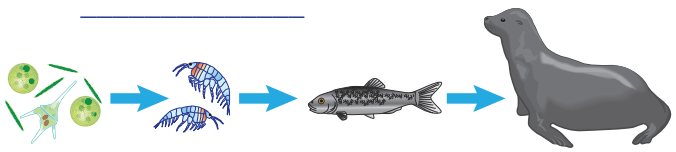
8 As **energy** is **passed** on from organism to organism in a food chain, the **amount of energy** becomes _____.

a. greater
b. more noticeable
c. less and less



9 If one animal in a food chain **dies**, that will **affect all the animals** in the food chain. True or false?

_____



10 A **food web** is a system of _____.

a. carnivores
b. overlapping food chains
c. overlapping plants

Force, motion and energy

Sci D

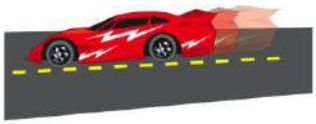
Name _____ Class _____ Date _____

1 _____ is the process in which an **object changes place or position**.

A Speed
B Friction
C Work
D Motion

2 _____ is the **rate** at which an object changes its position.

A work
B motion
C speed
D inertia



3 If accelerate means to go faster, than **decelerate** means to _____.

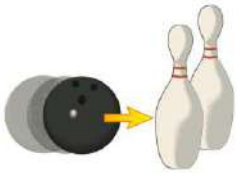
A slow down
B go even faster
C immediately stop
D change direction

4 A **push or pull** upon an object is _____.

A inertia
B friction
C a force
D speed

5 This picture is an example of a **force** that acts only upon objects that come in _____ with each other.

A chemical contact
B physical contact
C close contact
D magnetic contact



6 Some forces do <u>not</u> need direct contact to act. Which force below acts at a distance and affects objects **without contact?**

A a person pushing door
B a magnet attracting paper clip
C a person pulling a rope
D a dog moving ball across floor

7 **Pushing and pulling** an object can change the _____ of an object.

A size and weight
B matter and mass
C position and motion
D gravity

8 What is a **force** that works **against an object** that is moving along a surface, which can slow down or stop an object?

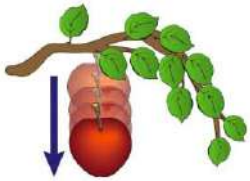
A friction
B inertia
C work
D push

9 _____ is a property of matter referring to the way an object **remains at rest and does <u>not</u> move** unless someone or something forces it to move.

A Speed
B Gravity
C Work
D Inertia

10 What **force** is causing the apple to **fall to the ground** in this picture?

A gravity
B inertia
C magnetism
D a push



Introduction to animals

Sci D

Name _____ Class _____ Date _____

1 _____ produces a **mirror image** if a line is drawn through it at one **certain place only**, such as top to bottom.

A Shape symmetry
B Color symmetry
C Radial symmetry
D Bilateral symmetry

2 An animal uses **camouflage** to protect itself from prey. What is **camouflage**?

A becoming warm-blooded
B having the appearance of one's surroundings
C having ability to see in dark
D being able to run fast

3 What is an animal **adaptation**?

A an animal's habitat
B an animal's environment
C a trait that helps organisms survive
D an animal's life cycle

4 **Body adaptations** are a type of physical adaptation.

True or false?

A true
B false

5 Why do animals have and use **adaptations**?

A to shorten their life span
B to help them survive in their environments
C to be caught by predators
D to lose their habitats to other animals

6 What **animal adaptation** does the animal in the picture use as a defense weapon against other animals that try and harm it?

A camouflage
B large teeth
C poison
D terrible smell or odor

7 Some animals use **mimicry** as a form of defense. **Mimicry** is when a weaker animal purposely looks like _____.

A a stronger animal
B a weaker animal
C animals with no adaptations
D its own self

8 **Monarch butterfly** bodies contain a poison. The **Viceroy butterfly** is not poisonous, but looks similar to the Monarch. Since it looks similar to a Monarch butterfly, what might predators think about the **Viceroy** butterfly?

A that it is not poisonous
B that they should eat it
C that it is a Monarch butterfly
D that it would not hurt them

9 What **adaptation** does this animal use as a defense against anything that might harm it?

A camouflage
B mimicry
C strong smell
D excellent eye sight

10 _____ are **not learned**; they are instincts that animals are born knowing to do.

A Learned behaviors
B Inherited behaviors
C Taught behaviors
D Watched behaviors

Introduction to animals

Sci D

Name _____ Class _____ Date _____

1 An **inherited behavior** is done _____ by the offspring.

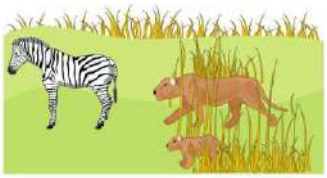
A on instinct
B by accident
C by mistake
D after it is learned

2 A spider **already knows** how to spin a web when it is born. This is an example of a(n) _____.

A behavior learned by insects
B learned behavior
C inherited behavior
D taught behavior

3 **Learned behaviors** are traits that are not _____ or done by instinct.

A inherited
B taught
C watched
D practiced



4 Animals **learn** behaviors by _____.

A closing their eyes
B keeping to themselves
C thinking alone
D watching other animals

5 An example of a **learned behavior** or trait is _____.

A an animal feeling pain
B an animal feeling hungry
C a lion hunting for food
D a lion sleeping

6 The **movement** of animals during a particular season or time period in response to changes in climate or the availability of food is called _____.

A migration
B respiration
C transformation
D adaptation

7 _____ usually involves an animal **leaving** and then **coming back** to the same area again.

A Perspiring
B Learning
C Adapting
D Migration

8 An animal's state of **inactivity** when weather gets cold is called _____.

A migration
B hibernation
C ventilation
D respiration

9 What will most animals that hibernate do **before hibernating** to nourish their bodies during the winter?

A eat large amounts of food
B starve themselves
C drink less water
D sleep a lot

10 A **true hibernator** remains **totally** inactive for a long period of time; it sleeps deeply so it cannot be awakened, and its **body temperature** _____.

A drops incredibly low
B rises incredibly high
C remains at a normal temperature
D gets quite hot

Light and sound

Sci D

Name _____ Class _____ Date _____

1 **Light** is a form of energy that travels in _____.

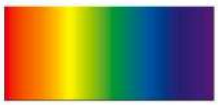
A units
B waves
C reflections
D decibels

2 We can see only the wavelengths and frequencies of the colors in the _____, which include red, orange, yellow, green, blue, and violet.

A night spectrum
B day spectrum
C viable spectrum
D visible spectrum

3 As you move from left to right on the visible light spectrum, wavelength decreases and frequency increases. Which color of the visible spectrum then would have the **shortest wavelength and the highest frequency**?

A red
B yellow
C violet
D blue



4 Most waves in the **electromagnetic spectrum** are _____ to our eyes. X-rays and waves in your microwave that cook your food are examples of electromagnetic waves.

A invisible
B visible
C bright
D reflected

5 What occurs when light rays **bounce off** a surface back to your eyes, like seeing yourself in mirror?

A refraction
B bending
C interpreting
D reflection

6 When talking about light, what is **absorption**?

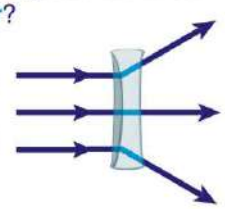
A when light bounces off object
B when an object takes in or absorbs light
C when light is reflected
D when light is refracted

7 _____ is when light **bends** as it moves from one medium to another.

A Reflection
B Refraction
C Absorption
D Twisting

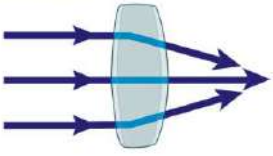
8 What type of lens is **thinner in the middle** than on its edges and makes things look **smaller**?

A magnifying lens
B convex lens
C microscope lens
D concave lens



9 A _____ lens is **thicker in the middle** than on its edges and makes things look **larger**. A magnifying glass contains a convex lens.

A concave
B convex
C large
D convert



10 Materials react to light in different ways. What type of material allows light to pass through clearly **without any effects**, like a window?

A translucent
B opaque
C transparent
D dense

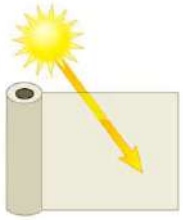
Light and sound

Sci D

Name _____ Class _____ Date _____

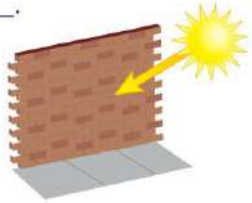
1 _____ material, such as wax paper, allows light to pass through, but it's not clear.

A Translucent
B Opaque
C Transparent
D See-through



2 Materials that do not allow any light to pass through at all, such as brick, are _____.

A translucent
B opaque
C transparent
D clear

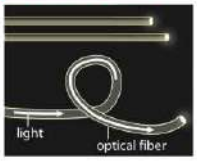


3 What is a powerful beam of light that creates a lot of heat?

A flashlight
B optical fiber
C laser
D night light

4 _____ are extremely thin fibers, made out of glass or plastic, which are bundled together in a flexible tube and have a source of light at the end.

A Optical fibers
B Lasers
C Flashlights
D Headlights



5 Sound is a type of energy that travels in waves and is caused by _____.

A light energy
B vibrations
C echoes
D spectrums

6 Sound is produced by the vibrations of objects. What are vibrations?

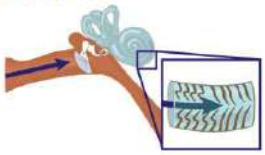
A loud movements
B slow movements
C rapid back and forth movements
D movements we can see with our eyes

7 Sound enters our ear canal, reaches our ear drum, and causes our ear drum and then three tiny bones in our ear to _____.

A strike
B be still
C rub
D vibrate

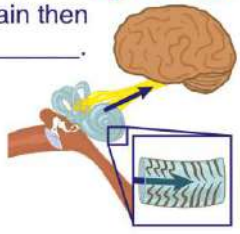
8 After our ear drum and the tiny bones vibrate, the vibrations move into the _____ of the inner ear, which is filled with liquid that begins to vibrate causing tiny hairs within it to vibrate as well.

A ear lobe
B ear canal
C ear wall
D cochlea



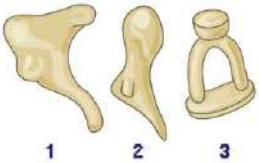
9 The vibrations of the hairs inside the cochlea of the ear send a signal to the brain, which the brain then interprets as _____.

A sound
B light
C heat
D smell



10 This is a picture of the three tiny bones located in your middle ear: the hammer, stirrup, and anvil. They get their names because of how they look. Which bone is labeled #2?

A hammer
B stirrup
C anvil
D bucket



Plant growth and reproduction

Sci D

Name _____ Class _____ Date _____

1 Many plants produce _____ in order to **reproduce** or make new plants.

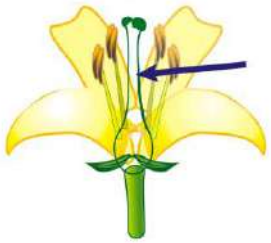
A seeds
B leaves
C stems
D roots

2 What part of the plant produces **seeds**?

A leaves
B roots
C stem
D flower

3 What is the **female organ** of a flower?

A pollen
B roots
C pistil
D stamen



4 The **pistil** of a flower produces _____ needed for plant reproduction.

A cones
B petals
C leaves
D egg cells

5 The **male organ** of a flower is called the _____.

A stamen
B pistil
C root
D stem

6 What does the **stamen** of a flower produce?

A seeds
B pollen
C leaves
D petals

7 Why are some flower **petals** so colorful?

A to grow larger
B to catch water
C to attract bees, butterflies, and birds
D to take in oxygen

8 The **sepals** of a flower, which look like tiny leaves, protect the _____.

A leaf
B stem
C flower bud
D roots

9 **Pollen** needs to be transferred from one flower's stamen to _____ in order for plant reproduction to occur.

A the stem
B the pistil
C the petal
D the leaf

10 _____ is the **sweet liquid** produced by flowers to attract insects and birds.

A Nectar
B Pollen
C Sap
D Water

Plant growth and reproduction

Sci D

Name _____ Class _____ Date _____

1 A flower's nectar is located **deep inside the flower** so that when an insect or bird tries to get the nectar it also rubs up against the pollen on the flower as well.

True or false?

A true
B false

2 What frequently happens to the **pollen** that rubs off onto bees and birds?

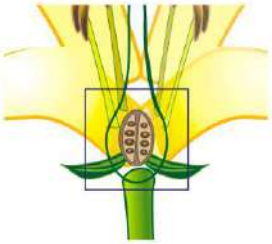
A It is eaten.
B It harms the insects and birds.
C It gets transferred to other flowers.
D It makes food for the plant.

3 Bees, butterflies, and insects carry pollen from flower to flower. What is this **movement of pollen** from one flower to another called?

A pollination
B germination
C hibernation
D photosynthesis

4 The _____ of a flower contains **egg cells**.

A petals
B stamen
C ovary
D roots



5 _____ is the process of **sperm cells** from pollen combining with **eggs cells** in the ovary of a flower.

A Photosynthesis
B Fertilization
C Growth
D Germination

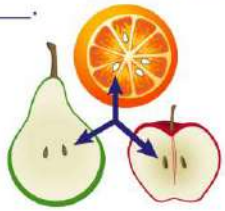
6 **Pollen** can also be spread to other flowers with the help of the wind.

True or false?

A true
B false

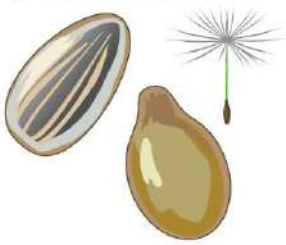
7 After **fertilization**, a plant produces a seed or seeds that are often protected inside a _____.

A pistil
B leaf
C cell
D fruit



8 In a plant's life cycle, **seeds** grow into _____.

A new plants
B fruit
C leaves
D water



9 What is the process of a seed **beginning to grow** called?

A photosynthesis
B respiration
C germination
D fertilization

10 All the **changes** a flowering plant goes through during its **lifetime** is called its _____.

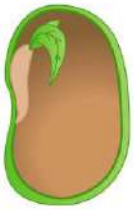
A death
B life cycle
C leaves
D fertilization

Plant growth and reproduction

Sci D

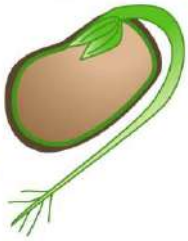
Name _____ Class _____ Date _____

1 A **seed** is **surrounded** and protected by a _____ until it is ready to germinate.



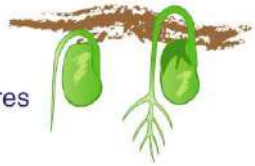
A seed coat
B shell
C root
D petal

2 What does a germinating **seed** contain?



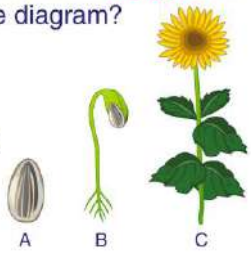
A food only
B a stem only
C a leaf only
D leaf, stem, root, and stored food

3 Seeds need the **proper conditions** in order to grow. Which of the following does a seed need in order to germinate?



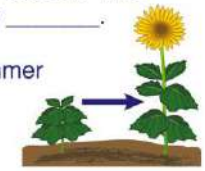
A salt
B cold temperatures
C water
D carbon dioxide

4 Which stage of a plant's **life cycle** is labeled B on the diagram?



A seed
B seedling
C mature plant
D leaves

5 In Mary's garden, some of her flowers grow for **more than** one season, while other flowers die after only one season. This information suggests that _____.



A plants grow in the summer
B plants need oxygen
C plants need water to grow
D plants have different life spans

6 Why is it important for **seeds** to be scattered **away** from the parent plant?

A so a young plant can grow in shade
B so they can share nutrients
C so both plants do not have to share resources
D so parent plant can help the young plant

7 Some **seeds** are prickly or have hooks that get stuck to the fur of some **animals**. These seeds eventually fall off the animal and grow in the soil where they fall. Which statement supports this type of event?

A Seeds need water to live.
B Animals eat seeds.
C Seeds travel to other areas on animals.
D Seeds need oxygen to grow.

8 Which statement **supports** the action seen in the picture?

A Wind blows seeds to other areas to grow.
B Animals carry seeds to new places.
C People eat seeds.
D Animals depend on seeds for survival.

9 Mosses and _____ do not produce seeds.

A oak trees
B ferns
C maple trees
D sunflowers

10 **Mosses and ferns** do not produce seeds. What **do** they produce in order to **reproduce**?

A hooks
B roots
C spores
D fruit

Rocks and minerals

Sci D

Name _____ Class _____ Date _____

1 **Rocks** are made up of many tiny pieces of _____.

A wood
B minerals
C metal
D tin

2 If you hit a large rock with a hammer and break it into **hundreds of pieces**, the pieces would _____.

A still be made of the same minerals
B include some new and some old minerals
C form new minerals
D become different rocks

3 **Minerals** are _____.

A living pieces of rock
B small metal pieces
C natural, nonliving crystals that make up rocks
D man-made crystals that turn into rocks

4 **Minerals** come in many sizes, shapes, and colors which _____.

A help scientists tell them apart
B make them all look exactly alike
C make them all look shiny
D make them harder

5 **Minerals** can also be identified by their _____ such as: color, luster, hardness, and streak color.

A chemical properties
B physical properties
C size properties
D weight properties

6 What **physical property** have these rocks been grouped by?

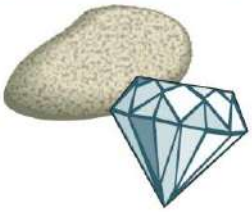
A color
B hardness
C luster
D size

7 What does the physical property of **luster** tell you about a mineral?

A how yellow a mineral is
B how hard a mineral is
C how shiny a mineral is
D how soft a mineral is

8 The _____ of a mineral refers to **how easily it can be scratched**.

A streak
B color
C luster
D hardness



9 **Streak color** is a physical property of minerals, which refers to the color streak a mineral leaves when _____.

A held
B scratched against a surface
C put in water
D put in the sun

10 In the process of _____, bits of rocks, sand, soil, and dead matter are **moved** by the wind, water, and gravity.

A erosion
B precipitation
C sedimentation
D evaporation

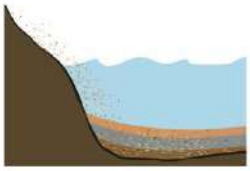
Rocks and minerals

Sci D

Name _____ Class _____ Date _____

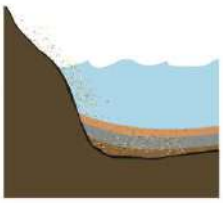
1 All the eroded materials that eventually **settles** on land or at the bottom of a body of water are known as _____.

A magma
B minerals
C sediment
D crystals



2 Where do layers and layers of **sediment** often pile up on top of each other?

A at the bottom of a body of water
B in the atmosphere
C on mountain top
D in faults



3 The weight and pressure of many layers of sediment forms **sedimentary rock**. Since they form in layers, sedimentary rocks _____.

A never form near water
B are always light
C often contain fossils
D are made of wood

4 **Limestone** is a sedimentary rock made up of hard skeletons and shells. Which of these statements supports the sentence above?

A Limestone is formed from water.
B Limestone comes from ancient plants.
C Limestone is formed from once living organisms.
D Limestone is expensive.

5 **Sandstone** is a type of sedimentary rock made up of tiny pieces of quartz about the size of a grain of _____.

A sand
B metal
C copper
D nickel

6 Rocks can loosen, weather, or weaken and eventually start to break up into tiny pieces of weathered rock. This helps make up the _____ on the **earth's surface**.

A lava
B soil
C wood
D decomposers

7 Igneous rocks form from molten rock called **magma**. What is **magma**?

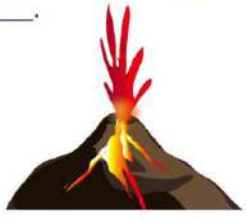
A solid rock found on earth's surface
B solid rock found beneath the earth's surface
C melted rock found on top of earth's surface
D melted rock found beneath earth's surface

8 **Igneous rocks** can form _____ the earth.

A above
B above and below
C below
D under

9 When **magma** comes out of a volcano and **onto the earth's surface**, magma is then called _____.

A lava
B magma
C sediment
D molten rock



10 Once on the earth's surface, lava will cool quickly forming igneous rocks. Why **don't** these igneous rocks form crystals?

A because the lava is above the surface
B because they cool too slowly
C because they cool too quickly
D because lava cannot form crystals

Rocks and Minerals

Sci D

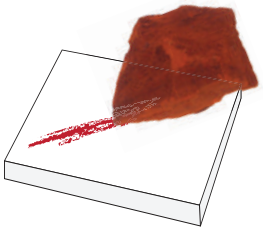
Name _____ Class _____ Date _____

1 **Rocks** are made up of many tiny pieces of _____. Circle the answer.

minerals plants

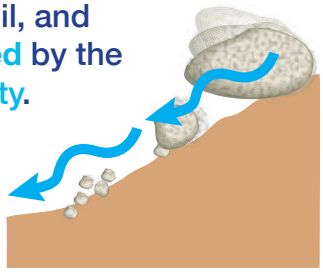
wood metal

2 **Minerals** are natural, nonliving crystals. They can be identified by their **physical properties** such as **streak color.** Name another **physical property** of minerals.



3 The _____ of a **mineral** refers to how easily it can be scratched.

4 In the process of _____, bits of rocks, sand, soil, and dead matter are moved by the wind, water, and gravity.



5 Where do layers and layers of sediment often pile up on top of each other?

a. at the bottom of a body of water

b. on mountain tops

c. in faults

6 Name two **metamorphic** rocks.

7 **Igneous rocks** can form above and below the Earth's surface.

true

false

8 What is referred to as the **rock cycle**?

a. the wearing of rocks

b. finding fossils in rocks

c. the recycling of old rocks into new rocks

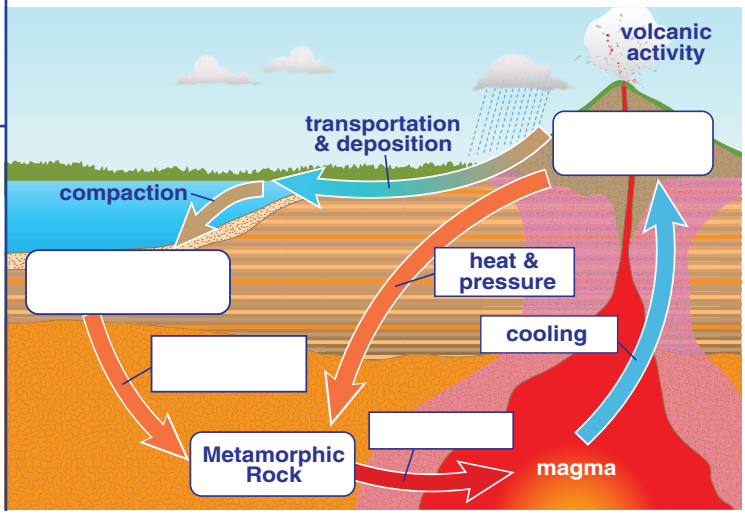
9 Metamorphic rocks form through years of heat and pressure. What causes the pressure below the Earth's surface?

a. warm temperatures

b. the weight of rocks pressing down

c. sediment breaking apart

10 Finish labeling the **rock cycle**.



Chemical and physical changes of matter

Sci E

Name _____ Class _____ Date _____

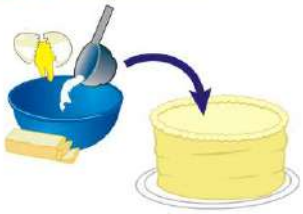
1 A **chemical change** is a change in which one kind of substance is _____.

A sometimes changed
B not changed at all
C changed into a different kind of substance
D kept separate from other substances

2 Which is true of the substance produced as the **product** during a **chemical change**?

A It increased in mass.
B It decreased in mass.
C The exact same substance was present before the change.
D It is a unique new substance with different properties.

3 Unlike a physical change, a **chemical change** cannot be _____.



A reversed
B proven
C done
D explained

4 Which of the following is an example of a **chemical change**?

A moving a can
B crushing a can
C the rusting of a metal can
D cutting a can in half

5 _____ food is an example of a **chemical change**.

A Smelling
B Digesting
C Cutting up
D Freezing

6 When a piece of fruit **rots**, it goes through _____ change.

A only a physical
B a physical and chemical
C a reversible
D a nonexistent

7 During a chemical change, one type of matter is changed into another type of matter. When a car is **rusting**, and going through a **chemical change**, steel is changing into _____.

A oxygen
B nitrogen
C rust
D dirt

8 A burning piece of paper, and the oxygen in the air around it, undergo a **chemical change.** What is one **clue** that a **chemical change** is taking place?

A It weighs less after burning.
B It gives off oxygen.
C It gives off energy in the form of heat.
D It breaks up into little pieces.

9 Which of the following is an example of a **chemical change**?

A cracking an egg
B cooking a raw egg
C a chicken laying an egg
D dropping an egg onto the floor

10 These are all possible **signs** that _____.

- a change in color
- a change smell
- light is given off
- a gas is produced

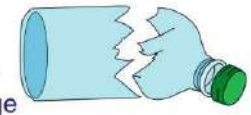
A no change has occurred
B a physical change has occurred
C a chemical change has occurred
D a reversible change has occurred

Chemical and physical changes of matter

Sci E

Name _____ Class _____ Date _____

1 A(n) _____ is when matter undergoes a change that **does not** result in the formation of a **completely new substance** with different properties.



A physical change
B chemical change
C permanent change
D irreversible change

2 What does a **physical change** involve?

A an object's chemical properties
B an object's size, shape, or its state
C no properties of the object
D the elements the object is made of

3 After a **physical change**, the substance or object involved _____.

A is the same shape
B is chemically different, but looks the same
C looks different, but is chemically the same
D looks different, and is chemically different

4 **Cutting paper** is a physical change because the paper _____.

A can never be paper again
B has changed it's chemical properties
C can be burned
D is still paper

5 Which of the following is an example of a **physical change**?

A an ice cube melting
B milk souring
C a ring tarnishing
D bread toasting

6 A piece of paper being **torn into several pieces** is an example of a _____.

A harmful change
B material changing into a different material
C chemical change
D physical change

7 Which is an example of a **physical change**?

A raking leaves
B dead leaves turning into compost
C burning leaves
D all of the above

8 **Mowing your lawn** is an example of a(n) _____ change.

A physical
B chemical
C permanent
D irreversible

9 Which of the following is an example of a **physical change**?

A steel swing set rusting
B a log burning
C butter being melted
D waffle burning in a toaster

10 These are possible **signs** that _____.

- change of shape
- change of state (solid, liquid, or gas)
- change in size

A no change has occurred
B an irreversible has occurred
C a chemical change has occurred
D a physical change has occurred

Properties of matter and Energy

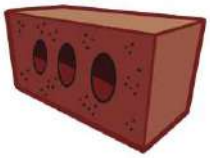
Sci E

Name _____ Class _____ Date _____

1 Which is the **best** definition of the word **matter**?

A anything that is hard and has weight
B anything that is large in size
C anything that takes up space and has mass
D anything that has volume

2 If you were trying to figure out the **amount of matter** in a certain object, you would be trying to figure out the _____ of that object.



A velocity
B volume
C density
D mass

3 Which of the following tools would you use to **measure the mass** of an object?

A a pan balance
B a thermometer
C a graduated cylinder
D a funnel

4 Hannah determined the **amount of space** the liquid in container A takes up. She determined the _____ of the liquid in container A.

A mass
B weight
C volume
D height

5 Which tool would best be used to **measure the volume** of a liquid?

A a spring scale
B a pan balance
C a thermometer
D a graduated cylinder

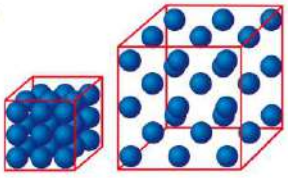
6 Donovan had to measure the **weight** of the desk. What did he have to find out?

A how much mass fits into a certain space
B how much matter fits into a certain space
C the amount of space it takes up
D the measure of the pull of gravity on the desk

7 Which tool should be used to **measure the weight** of an object?

A a spring scale
B a graduated cylinder
C a thermometer
D a ruler

8 The amount of matter that **fits into a certain space** or how much is packed together describes an object's _____.



A weight
B mass
C density
D volume

9 A dry, solid **rock** conducts electricity **better** than a long, metal **wire**.

True or false?

A true
B false

10 Which is an example of matter that **insulates** against energy?

A a metal spoon
B wire
C a wooden handle
D a key

Properties of matter and Energy

Sci E

Name _____ Class _____ Date _____

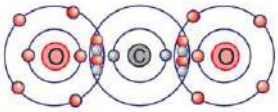
1 **Lightning** is a form of _____ energy.

A potential
B mechanical
C electrical
D chemical

2 **Thermal energy** is energy related to _____. An example of thermal energy is **geothermal energy**.

A space
B chemicals
C sound
D heat

3 _____ is energy **stored** in the **bonds** between atoms of molecules. It's the bonding energy that holds these particles together.



A Mechanical energy
B Chemical energy
C Light energy
D Potential energy

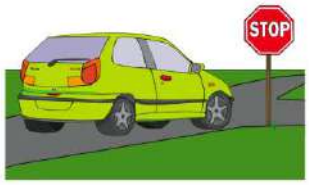
4 **Mechanical energy** is the energy an object has due to its _____.

A weight
B motion or position
C size and shape
D volume and density

5 A ball rolling down a hill and a rubber band pulled back are **both** examples of mechanical energy. Therefore, what is true of **mechanical energy**?

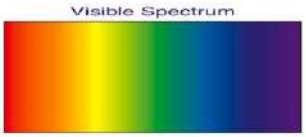
A It can never be in the form of kinetic energy.
B It can only be in the form of potential energy.
C It can only be in the form of kinetic energy.
D It can be either kinetic or potential energy.

6 A car that is being driven on a flat street possesses **mechanical energy** due to its _____.



A size
B location
C motion
D density

7 **Visible light**, **x-rays**, **gamma rays**, and **radio waves** are examples of _____ energy.

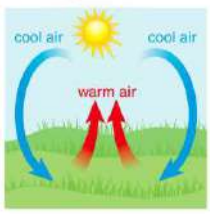


A chemical
B kinetic
C radiant
D sound

8 When a metal spoon is put inside a hot cup of hot chocolate, the spoon gets warmer. How is heat **transferred** from the cup to the spoon?

A by convection
B by radiation
C by thermal reduction
D by conduction

9 The **transfer of heat** from one area to another **through liquid or gas** occurs by _____.



A convection
B radiation
C thermal reduction
D conduction

10 **Radiation** is the transfer of heat through electromagnetic waves. Which is an example of **radiation**?

A putting on a sweater
B the Sun warming your face
C turning a light on
D lighting a match

The nature of science

Sci E

Name _____ Class _____ Date _____

1 Joseph was examining a rock he had found. He **looked** closely at the rock, he noticed the rock **smelled** like moss, and **felt** the rock with his fingers. What was Joseph using to examine the rock he had found?

A his textbook knowledge
B his past experiences
C his senses
D his science book

2 Amy was **sorting** leaves into different piles according to their shape, veins, and other physical characteristics. What was Amy doing with the leaves?

A matching
B labeling
C tagging
D classifying

3 After it started raining on Monday, Kelli made an **educated guess** on how much rain would fall in one hour based on her previous observations and her background knowledge. What was Kelli doing?

A estimating how much rain would fall
B stating exactly how much rain would fall
C randomly choosing an amount
D deciding how the rain formed in the sky

4 As a scientist, what should you do after you state a **hypothesis**?

A think of another hypothesis
B tell others your hypothesis is true
C state your hypothesis as fact
D test your hypothesis by doing an experiment

5 Sam planted a seed in a pot of soil, watered the soil, and placed the pot in a sunny window. Since he knew that plants need **sunlight** and **water** to grow, what can Sam **infer**?

A that a plant will soon grow
B that the seed will not sprout
C that the plant will die
D that the plant will grow red flowers

6 What do scientists often **create** to help them explore and examine objects that are **too large** to examine life-sized or are **difficult to examine** in real-life form?

A a bar graph
B a pie chart
C a model
D a microscope

7 Scientists examine many different things in order to **gather information** about the objects or organisms they are studying. What is another word for **studying something closely**?

A investigating
B making an inference
C classifying
D making a hypothesis

8 Scientists collect _____, which means **facts and information**, in order to answer questions and test hypotheses.

A graphs
B data
C letters
D experiments

9 Scientists do not just collect information during experiments, they also need to _____ the information they collected. This helps to **understand** and **explain the meaning** of that information.

A classify
B hypothesize
C guess
D interpret

10 What is the main reason scientists **conduct experiments** and **investigate**?

A because they want to make graphs
B because they want to answer questions
C because they want to write notes
D because they want to use chemicals

The nature of science

Sci E

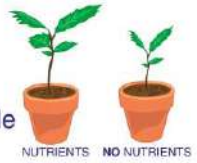
Name _____ Class _____ Date _____

1 What is written on **Line 2** of this lab report?

Line 1: Mark Hetfield Line 2: I think that plant A will grow taller than plant B. Line 3: 2 seeds, 2 cups, soil, water, marker

A the results of Mark's experiment
B the supplies needed for experiment
C Mark's name
D Mark's hypothesis

2 An experiment needs at least two parts that can be **compared**. What is the part of an experiment that you **do not make any changes to**?



A your hypothesis
B your data
C the dependent variable
D the control variable

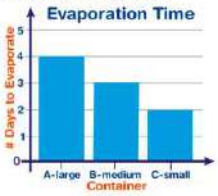
3 What is the best way to **test** your hypothesis?

A look on computer
B ask a friend
C conduct an experiment
D read a book

4 It is important to **collect** and **record** the data you get from an experiment. When should this be done?

A before the experiment
B during and after the experiment
C only during the experiment
D only after the experiment

5 John filled three different-sized containers up to the rim: A large, B medium, C small. John **hypothesized** that the water in the container holding the **least amount** would evaporate **first**. According to the graph, was his hypothesis **accurate**?

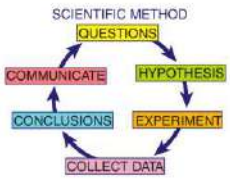


A yes
B no
C can't tell by the graph
D the experiment failed

6 Alanna's hypothesis stated that animal A would build its home **faster** than animals B, C, and D. Look at the graph; did the results of Alanna's experiment **support her hypothesis**?

A yes
B no
C cannot tell by the graph
D the experiment failed

7 An important step in the **scientific method** is to always _____ the conclusions and statements you make after an experiment.



A hide
B show evidence of
C predict
D clean up

8 **Match** the hypothesis to the experiment.
Hypothesis: _____
Experiment: Combine baking soda and vinegar together in a beaker.

A Vinegar will have an odor, baking powder will not.
B Baking soda will test as a basic substance.
C Vinegar and oil will not mix together.
D The baking soda will bubble when mixed with vinegar.

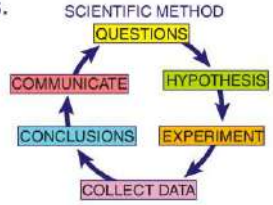
9 Which **hypothesis** would be best tested by conducting this experiment?

Hypothesis: _____
Experiment: Place a piece of bread in a plastic bag labeled A, and a piece of bread on a plate labeled B. Observe both pieces of bread each day.

A Mold will grow in the sun, but not in shade.
B Mold will grow faster in a bag than on a plate.
C Mold will grow on bread soaked in water.
D Mold will grow faster on white bread than rye.

10 Completing **every step** of the scientific method **in order** will lead to the most accurate results.

True or false?



A true
B false

The nature of science

Sci E

Name _____ Class _____ Date _____

1 Cause: A pan of water was placed on the hot stove.
Effect: _____

A The water in the pan cooled down.
B The water in the pan turned red.
C The water in the pan spilled on the floor.
D The water in the pan began to boil.

2 A(n) _____ is the **variable** that is being observed during an experiment.

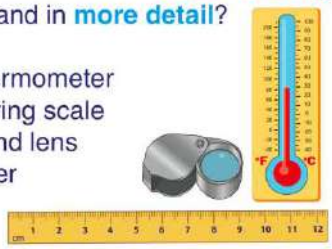
A restricted variable
B dependent variable
C independent variable
D controlled variable

3 Emma was conducting an experiment to determine the length of time it would take dough to rise above the loaf pan it was in. As she made the dough, Emma added salt to pan B, water to pan C, and baking soda to pan D. She did not add anything to pan A. Which pan was the **controlled** variable?

A A **C** C
B B **D** D

4 Which tool is used to **observe things closer** and in **more detail**?

A a thermometer
B a spring scale
C a hand lens
D a ruler



5 Scott needed to **measure** the **length** of all the tables in the cafeteria. Which tool should Scott use in order to complete this task?

A a calculator
B a spring scale
C a metric ruler
D a pan balance

6 Rebecca wanted to **record** how her plant **looked** before she conducted her experiment and after her experiment was completed. Which tool would be best to do this?

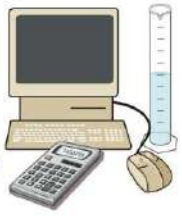
A a camera
B a pan balance
C a hand lens
D a hot plate

7 Mr. Cole needed a **source of heat** during the experiment he was showing his science class. Which source of heat would be **safest** and best for him to use in a science lab?

A a thermometer
B a campfire
C a gas grill
D a hot plate

8 Which tool is best for **collecting and organizing information** during and after an experiment?

A a computer
B a calculator
C binoculars
D a graduated cylinder



9 Jerry was conducting an experiment and accidentally **spilled baking powder** all over his lab table. To be **safe**, what should Jerry do next?

A finish his experiment
B clean up the spill right away
C clean up the spill after school
D move to a different lab table

10 What is the **most** important item students **should wear** while they are conducting a science experiment?

A a headband
B a visor
C glasses
D safety goggles