

FINAL REVIEW – General Science Grade 8

Scientific Method-Measurement:

1. The measure of the amount of matter in an object is its mass
2. As the pull of gravity on an object increases, there is always an increase in the objects weight
3. An instrument used to measure mass is the triple beam balance
4. The amount of space an object takes up is VOLUME
5. For an object to float on water, the object's density must be less than 1.0 g/cm³
6. What is the correct unit label for the mass of a regular solid? grams
7. What instrument would be the most accurate tool to measure the VOLUME of liquids? graduated cylinder
8. When reading a graduated cylinder, one must read the bottom of the meniscus.
9. The density of an object can be found by measuring its mass and volume. $D = \frac{m}{V}$
10. An ice cube has a density less than than water.
11. If a bar of gold is cut in half, its density remains the same
12. Water displacement is a method used to measure the volume of an irregular solid.
13. Mass never changes as you travel from one place to another.

ANSWER THE QUESTIONS AND SHOW ALL CALCULATIONS WHERE NECESSARY.

14. What is the volume of a cube if the following measurements were taken: SHOW

FORMULA AND MATH
Length = 5.0 cm
Width = 5.0 cm
Height = 5.0 cm

$$V = 5 \times 5 \times 5 \text{ cm} = 125 \text{ cm}^3$$
$$\frac{5g}{125}$$

15. If the mass of the object in the above question is 5g, what is the density of the object? SHOW FORMULA, MATH, AND UNITS 1.04 g/cm³

16. Define the following:
- Observation: information gathered using your senses / tools
- Hypothesis: An educated guess If... Then... because
- Control the part of the experiment that is unchanged
- Independent Variable: the variable that is changed - what you are testing
- Dependent Variable: what you measure
- Conclusion: the answer to the question based on the data

Unit 2

Rocks and Minerals:

- Magma in the Earth's crust that has risen to the surface and cools and solidifies.
 - Rock that is forced downward and is altered due to heat and pressure.
 - Rocks that are partially or completely melted
 - Formed from fragments of rock that have been broken or weathered and cemented together
- A. Magma
B. Sediments
C. Igneous Rock
D. Sedimentary Rock
E. Metamorphic Rock
-

5. A naturally occurring solid mixture of one or more minerals or organic matter is called

ROCK

6. What factors that can affect the texture of an igneous rock?

Rate of COOLING

LONG TIME = Large Texture
FAST = Fine Textured
C. DARSE

7. The continual process by which new rock forms from old rock is called

ROCK CYCLE

8. A rock deep underground is primarily affected by forces of

HEAT + PRESSURE

9. What are the markings on sedimentary rocks that record the wave motion of wind or water called?

Ripple marks

10. What force or forces can create metamorphic rock?

Heat + Pressure

11. What is the name for the trace or remains of an organism that lived long ago, often found in rocks?

FOSSEL

12. Erosion is one of the major causes of the missing rock layers known as

UNCONFORMITY

13. Most fossils are preserved in

sedimentary rock because

they are laid down in layers near water and

Igneous + Metamorphic Rocks are EXPOSED to high heat which would DESTROY the fossils

14. Which rock's name comes from the Latin word that means "fire"? IGNEOUS

15. What factors can affect the texture of a sedimentary rock? type of sediment

16. Fossils used to date surrounding rock layers is called a(n) Index Fossil

17. The phrase "younger over older" could be used to remember the principle of Superposition

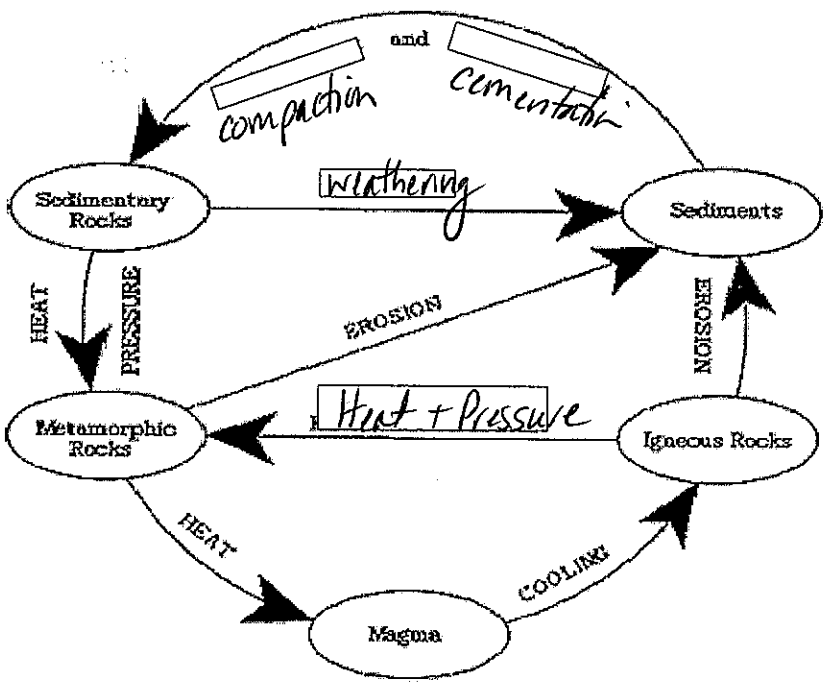
18. The process in which water, wind, ice and heat break down rock is called weathering

19. Sedimentary rocks form at or near the Earth's Surface

20. Over time, grains of sand may be compacted and cemented together to form a rock called Sedimentary (sandstone)

21. EROSION is the movement of sediments from one place to another. Deposition is when it "lands" somewhere.

Label the missing parts of the rock cycle.



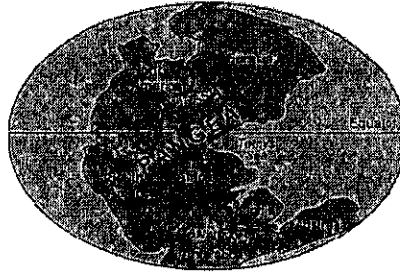
Unit 3

Dynamic Earth:

1. The layer of rock and sediment on the Earth's surface is the lithosphere (aka crust)
2. The hydrosphere is mostly WATER
3. Innermost layer of the Earth is CORE
 inner core = SOLID IRON
 outer core = LIQUID

Base your answers to questions 4-6 on the diagram below.

The diagram shows how scientists think some of the continents were connected in the past.



4. 4 What evidence suggests that the continents were once joined?

- ✓ 1) shapes of the continents appear to fit together
- ✓ 2) same fossils of plants and animals found on all of the continents
- ✓ 3) same rock structures (mountains) exist where continents would have been joined
- ④ 4) all of these are evidence for continental joining

5. 2 For the past 250 million years, Africa and South America have

- 1) rotated around each other
- ② 2) moved further apart
- 3) moved closer together

6. The Theory of Plate Tectonics suggests that the continents move because of

convection currents in the mantle layer inside the earth

7. The layers of the Earth from the outermost to innermost are:

CRUST, MANTLE, OUTER CORE, INNER CORE

8. The part of the Earth that is made up of liquid molten rock is MANTLE (MAGMA)

9. The Earth's interior is made of mostly IRON

10. The largest layer of the Earth's interior is MANTLE

11. The solid portion of the Earth's interior is Inner Core

12. The upper portion of the mantle, where the crust floats is known as the Asthenosphere

13. Pangaea is the name of the super continent. when all of the land masses on Earth were JOINED

14. Alfred Wegener was the scientist who stated "Continental Drift"

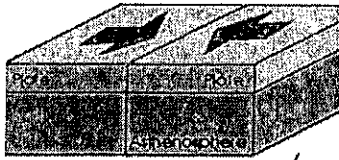
15. The supercontinent Pangaea began to break apart about 220 million years ago. State 3 pieces of evidence that support the inference that Pangaea existed.

A) continents fit like puzzle pieces

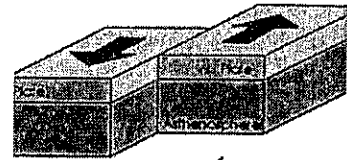
B) Mountain Ranges match

C) Fossils on coastlines of separated continents

16. Identify the following Plate Boundaries based on the picture given

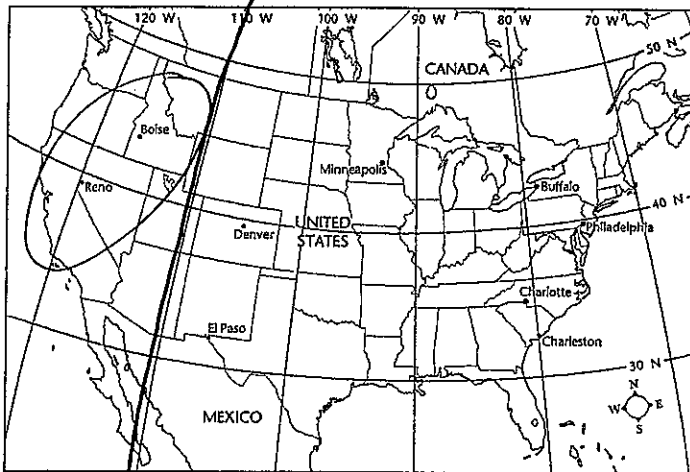


A) Convergent boundary
(mountain building)



B) Transform Boundary
(causes earthquakes)

Use the map below to answer the following questions.



16. How many cities on the map are located west of the 110°W longitude? 2 Boise + Reno

17. What connects points of equal elevation on a topographic map? CONTOUR LINES

18. Tectonic plates consist of continental crust + oceanic crust

19. A vent or a hole in the Earth's surface through which magma and gases are expelled is called a VOLCANO

connects North + South Poles
0° Longitude

Complete each statement by filling in the correct word from the list below:

Lava Magma Prime Meridian Focus Elevation Equator

above ground Epicenter Latitude Longitude below ground Contour Lines Pangaea Reference Point

- Once magma flows onto the Earth's surface, it is called LAVA.
- The imaginary circle halfway between the poles is the EQUATOR.
- People use a reference point to describe location and direction.
- The height of an object above sea level is its elevation.
- The molten rock inside a volcano is called MAGMA.

Unit 4

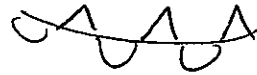
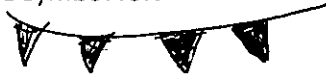
Weather:

- Name the layers of the atmosphere from Earth to space:
TROPOSPHERE, STRATO, MESO, THERMO, EXO
- Where would the exosphere be located? past the thermosphere - SPACE
- Where is the ozone layer located? between STRATO + MESO
- What is the purpose/function of the ozone layer - SHIELD
- OZONE LAYER is a shield that protects us from the UV Radiation from the SUN
- Name 3 ways that the earth is heated:
CONDUCTION, CONVECTION, and RADIATION
- Radiation: the transfer of energy from the sun through space.
- conduction: the transfer of heat by direct contact.
- convection: transfer of heat through air or a gas.
- There are 4 things that affect weather:
Air Pressure: density of air particles -
Wind: movement of air across the surface of the Earth
Humidity: amount of moisture in the air (70)
Precipitation: water that comes from CLOUDS → EARTH
- Air pressure is measured using a BAROMETER in units called inches
- A HIGH Pressure system brings weather that is fair and clear.
- A LOW Pressure system brings cloudy, unstable weather with possible precipitation.
- Earth ~~warms~~ warms the air (atmosphere) by convection currents.
- Warm air RISES while cold air SINKS because it is less dense.
- Wind direction is measured using a ~~anemometer~~ wind vane/sock and wind speed is measured using a anemometer
- Humidity is measured using a psychrometer
- Dew Point is:
the temperature at which gaseous water condenses into liquid water.

10. The four types of precipitation are: Rain, Hail, Sleet, and Snow.
11. RAIN GAUGE measures the amount of precipitation that has fallen.
12. Name the 3 basic types of clouds: cumulus, stratus, and cirrus
13. How do clouds form? condensation around dust particles
14. CIRRUS are light, feathery looking clouds that are made mainly of ICE.
15. CUMULUS are thick, puffy clouds that are associated with fair weather.
16. STRATUS are layered and grey and associated with or possible precipitation.
17. An AIR MASS is a large volume of air with the **SAME TEMPERATURE AND MOISTURE**.
18. A FRONT is a boundary between 2 air masses, warm and cold.
19. A WARM front has warm air that slides UP AND OVER COLD air and brings Longer periods of precipitation.
20. A COLD front has cold air that PUSHES WARM AIR UPWARD Quicker STORMS
21. Name the 4 types of severe weather: TORNADO, Hurricane, BLIZZARD, and THUNDER STORM

22. Draw the symbol for:

Cold Front:



Stationary Front:

Warm Front:



High Pressure:



Low Pressure:



23. What are isolines? areas with the **SAME** temp precip. etc.

24. What do station models show?

temperature, wind direction + speed, cloud cover

25. Draw the station model in the space at the right for the follow conditions.

Partly sunny skies, winds from the south west at 15 mph

SKIP

26. What is the greenhouse effect? Name the 2 greenhouse gases.

When radiation (Heat) from the sun is trapped on the earth by a layer of greenhouse gases CO₂ + SO

27. What atmospheric layer does weather take place in? TROPOSPHERE

28. What 2 main gases make up air? Nitrogen 79% and Oxygen 20%

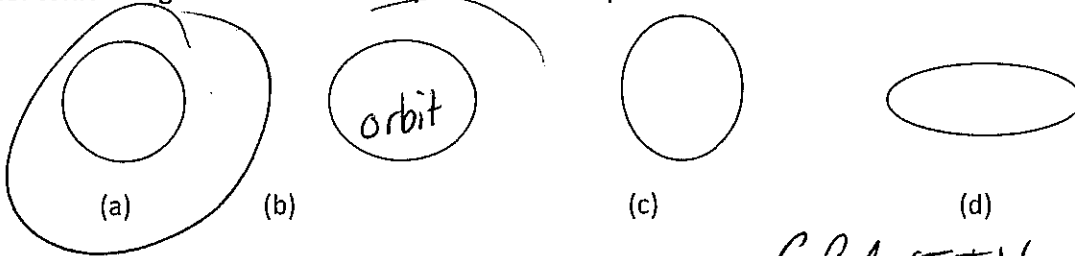
29. What are the percentages of them? ~79% and ~20%

Astronomy:

1. What makes up the electromagnetic spectrum? Radiation from the SUN
2. How long does Earth take to rotate once on its axis? 24 hrs = DAY
3. About how long does the moon take to orbit the Earth? 28 DAYS = ~ month
4. The color of a star depends on its temperature
5. What color are the hottest stars? BLUE
6. The H-R diagram graphs what two things? temperature + Magnitude (size)
8. Each planet moves around the sun in an orbit

9. The Sun's position in space is best described as the approximate center of the SOLAR SYSTEM

10. Which diagram most accurately shows the shape of the Earth?

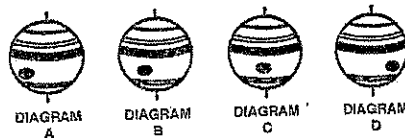


11. Which force keeps the planets in orbit around the Sun? GRAVITY

12. The Moon's gravitational force has greater effect on the ocean tides of the Earth than the Sun's gravitational force. The reason for this is

- a. The Moon has greater mass than the Sun
- b. The Moon is closer to the Earth than the Sun
- c. The Moon's mass is less than the Sun
- d. The Moon is a solid

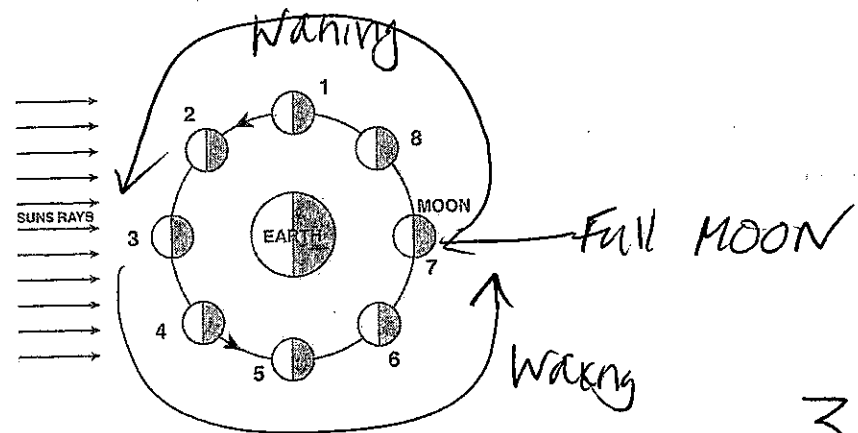
13. A planet is viewed from the Earth for several hours. The diagrams show the planet at four different times.



The best explanation for these observations is that the planet is Rotating

14. Which motion causes the apparent setting of the Sun each day? Rotation

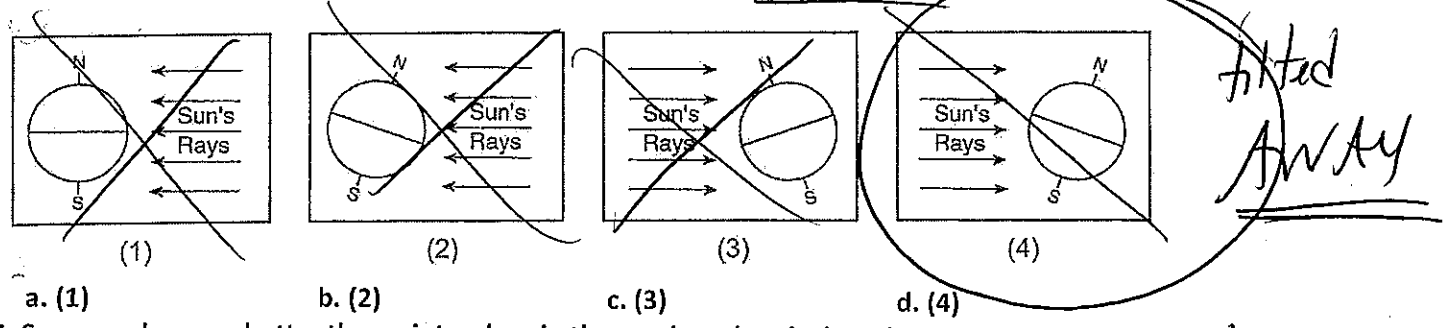
Base your answers to questions 15-16 on the diagram below, which shows eight positions of the Moon as it revolves around the Earth.



15. At which position would the Sun be eclipsed if the Earth, Moon, and Sun were exactly lined up? 3

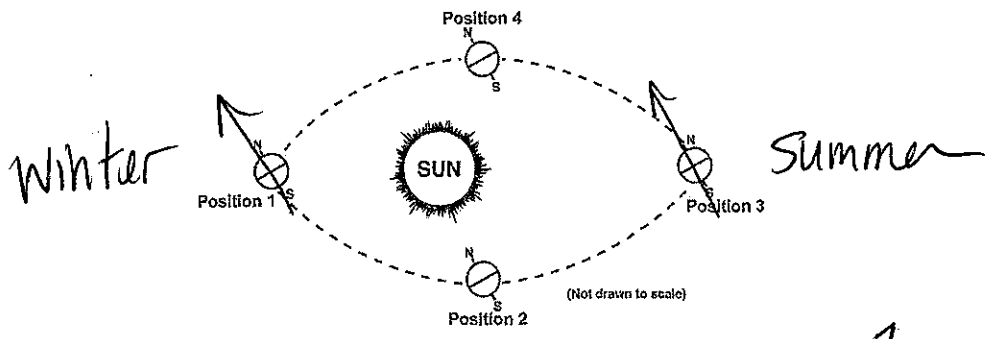
16. At which positions would the waning phases be? 8, 1, 2

17. Which diagram would represent the first day of winter in the Northern Hemisphere?



24. Summer days are hotter than winter days in the northern hemisphere because in the summer the earth's NORTHERN hemisphere is toward toward the sun so MORE direct RAYS HITTING NORTH America

Base your answers to questions 25-28 on the diagram below, which shows the four positions of Earth as it revolves around the Sun.



25. What position would represent December 21st in the Northern Hemisphere? 1

26. What position would indicate summer in the Southern Hemisphere? 1

29. What position would the Northern Hemisphere get the most direct rays from the Sun? 3 Summer

30. The approximate amount of time it takes the Earth to move from position 1 to 3 is 6 months

Unit 6

Reproduction:

1. All body cells are reproduced by this process: mitosis
2. All sex cells are considered this because of the number of chromosomes: haploid
3. Which type of cell is NOT reproduced through mitosis? sex cells/gametes
4. When we discuss gametes, we are talking about: sex cells - eggs/sperm
5. How many chromosomes do egg cells have? Humans - 23
6. Fertilization that occurs inside the female body is called: internal fertilization
7. Meiosis occurs in which organs? GONADS - Ovaries - Testes
8. In animal skin tissue, cell division is responsible for growth + repair
9. External fertilization usually occurs in what environment AQUATIC - Water
10. A process where an egg is released from the ovary is called: ovulation

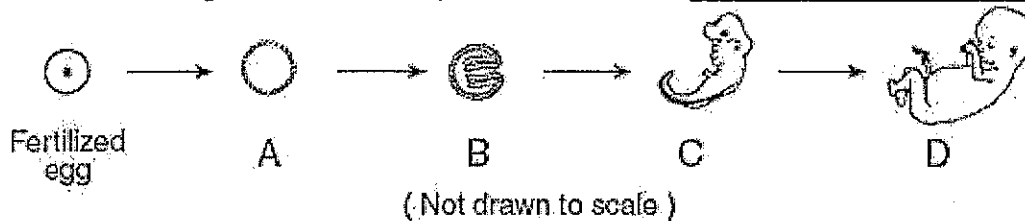
11. A plant produces tiny plants around the edges of its leaves. When these tiny plants fall to the ground, they take root and become new plants. This process is an example of

BUDDENING

Differentiation = organs develop

MITOSIS = Growth +

12. Between stages A and D, which process must occur?



13. Haploid means that the number of chromosomes in a cell have (reduced or doubled).
14. In males, both urine and sperm leave the body through the (urethra or testes).
15. A zygote attaches to the wall of the (oviducts or uterus).
16. The male hormone that triggers the development of secondary sex traits is (estrogen or testosterone).

17. The process by which blood and tissue lining leave the uterus is _____
(menstruation or ovulation)

18. What can occur during ovulation? _____
(fertilization or menstruation)

19. During metaphase/anaphase chromosomes line up in the middle of the cell.
(prophase or anaphase) pull apart

20. What female structure is also called the "birth canal"? _____
(cervix or vagina)

21. Which male structure produces sperm? _____
(testes or urethra)

22. During _____ an identical daughter cell is made.
(mitosis or meiosis)

23. Organisms, such as fish, which reproduce by external fertilization and development usually produce a _____ number of eggs.
(very large or very small)

24. Budding is an example of _____ reproduction.
(sexual or asexual)

25. The menstrual cycle occurs about every _____ days.
(28 or 48)

26. _____ is the joining of sperm and egg. **CONCEPTION**
(Ovulation or Fertilization)

27. The offspring from asexual reproduction are genetically _____ from the parent.
(identical or different)

Choose the number that best answers the question.

28. If a human has 46 chromosomes, how many chromosomes are found in a human sperm cell? (46, 28, 23, 4, 2)

29. How many daughter cells are produced by meiosis? (46, 28, 23, 14, 4, 2)

30. How many daughter cells are produced by mitosis? (46, 28, 23, 14, 4, 2)

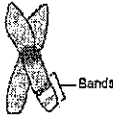
Unit 7

Genetics:

1. An organism is born with a genetic abnormality not present in any of its ancestors. This abnormality is most likely the result of MUTATION (source of variation)

2. What are genes composed of? D.N.A.

3. The drawing below represents a pair of chromosomes. The area labeled "bands" shows the location of genes



4. What advantage does a species that reproduces sexually have over a species that reproduces asexually?

- 1) There is greater variation among the offspring.
- 2) The offspring are identical to the parents.
- 3) Only one parent is necessary for reproduction.
- 4) No sex cells are needed for reproduction.

(plus mutations cause variations)

5. In humans a trait can be determined by one or many pairs of

genes (alleles)

6. What model is used to show how a trait is passed on from one generation to the next in a family

PUNNETT

7. In a cross between a pure and a hybrid yellow seeded pea plant ($YY \times Yy$), the percentage of offspring showing the dominant trait will be 100%

	Y	Y
Y	YY	YY
y	Yy	Yy

8. The percentage of offspring with the dominant trait if both parents are pure recessive is

100%

9. In most organisms, the male sex cell determines gender of offspring

	y	y
y	yy	yy
Y	Yy	Yy

10. Human females produce egg cells with the chromosomes XX

11. An organism that has both a dominant and recessive gene for a trait is

Heterozygous or Hybrid

15. A trait that prevents another trait from showing is

DOMINANT

XX = Girl XY = Boy

Color blindness is a sex linked trait. Assume there is a couple whose sex chromosomes are XY and XXc. Make a Punnett Square on the answer sheet and then answer the questions below. C = gene for colorblindness

	X	Y
X	XX	XY
X ^c	XX ^c	XY ^c

16. The father is represented by (XY or XXc).
17. The father is (normal or color blind).
18. The mother is (not colorblind or color blind).
19. Of the two male children, (both or only one) are/is normal.
20. Of the two female children, (both or only one) are/is normal.
21. Of the two female children, (both or only one) are/is hybrid.
22. A sex linked trait will show up more often in (males or females).

Matching: Select the correct letter for each statement that best matches.

23. A specific location on a chromosome - gene (E) A) Homozygous
24. The genotype is the same letter - AA (A) B) Heterozygous
25. A dominant and recessive trait - HETERO (B) C) Probability
26. Possible Outcomes - Probability (C) D) DNA
27. Chemical code that directs cell activities - DNA (D) E) Gene

28. Two pea plants with green pods, Gg x GG, were crossed. Complete the Punnett square below to show the results of this cross.

	G	g
G	GG	Gg
G	GG	Gg

29. What percentage of the offspring produced by this cross will most likely have green pods?
100% %

30. Show the genetic makeup of two parent pea plants whose offspring would all have yellow pods.

gg x gg G = Dominant Green g = recessive = yellow

Evolution:

1. Differences between members of the same species are called variations
2. A type of organism that no longer exists on Earth is said to be extinct
3. The Paleozoic, Mesozoic, and Cenozoic are divisions in the geologic time scale called ERA
4. Which term refers to similar structures that related species have inherited from a common ancestor?
HOMOLOGOUS Structures
5. The geologic time scale is a record of history of all living things on Earth since beginning
6. What theory agrees with fossils records to show no intermediate life forms for long periods of time then a sudden change? punctuated equilibrium
7. A trait that helps an organism survive and reproduce is called a(n) ADAPTATION
8. What did Darwin observe about finches in the Galapagos Islands? Beaks were different
9. Why do scientists think related species have similar body structures and development patterns?
COMMON ancestor
10. If two organisms look very similar during their early stages, this is evidence that the organisms have a common ancestor
11. What theory states that species evolve during short periods of rapid change? punctuated Equilibrium
12. The process by which all the different kinds of living things have changed over long periods of time is called EVOLUTION
13. Which term refers to a species creating more offspring than can possibly survive? over production
14. Which term refers to the process by which organisms that are better adapted to their environment are more likely to survive and reproduce? survival of the fittest - natural selection
15. What theory states that evolution occurs steadily in tiny changes over long periods of time?
gradualism