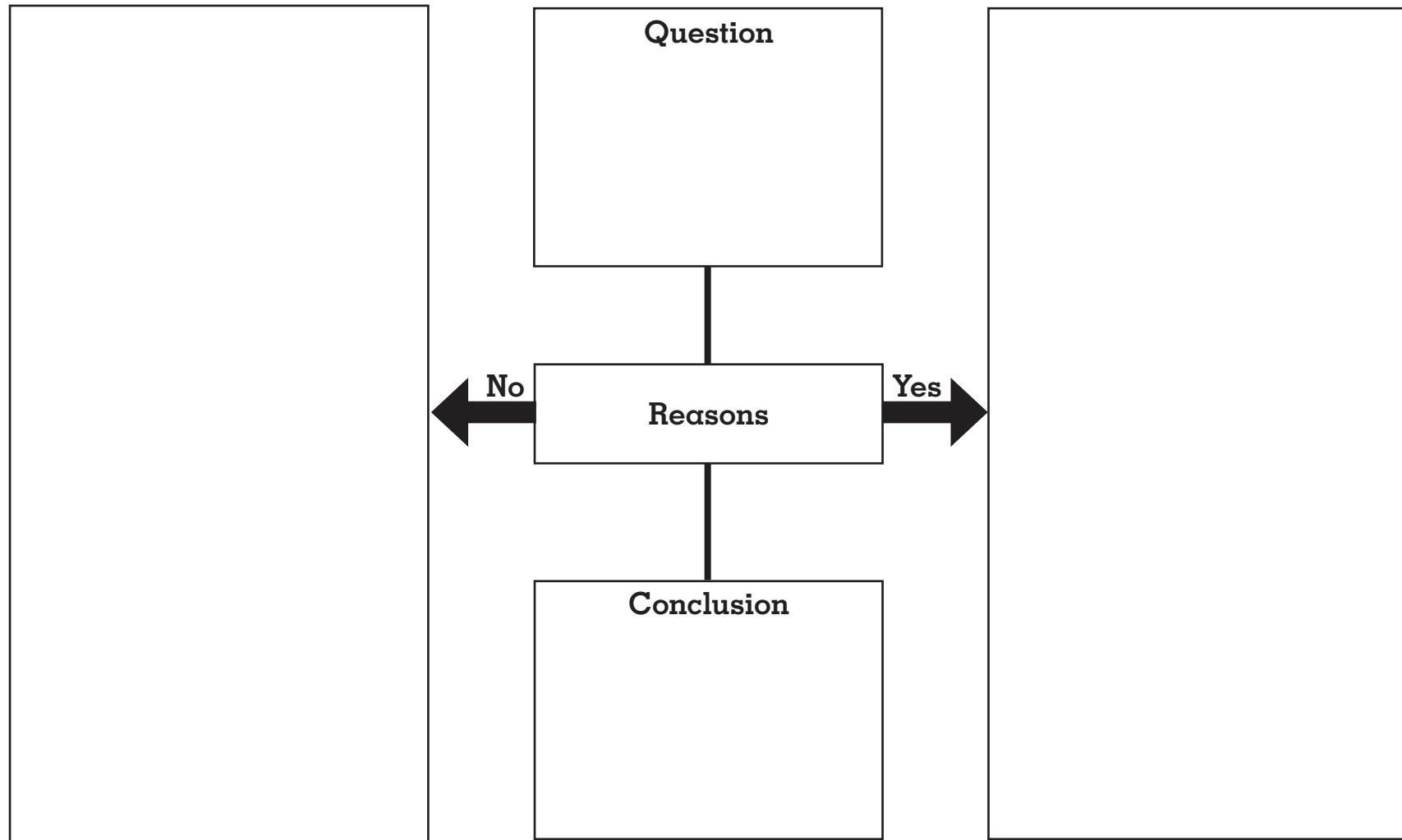


Instructional Aids

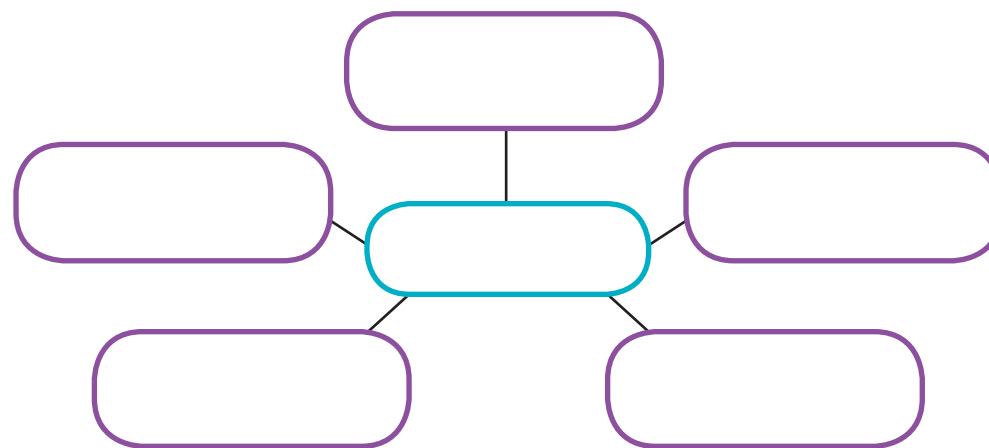
Discussion Organizer

Name _____



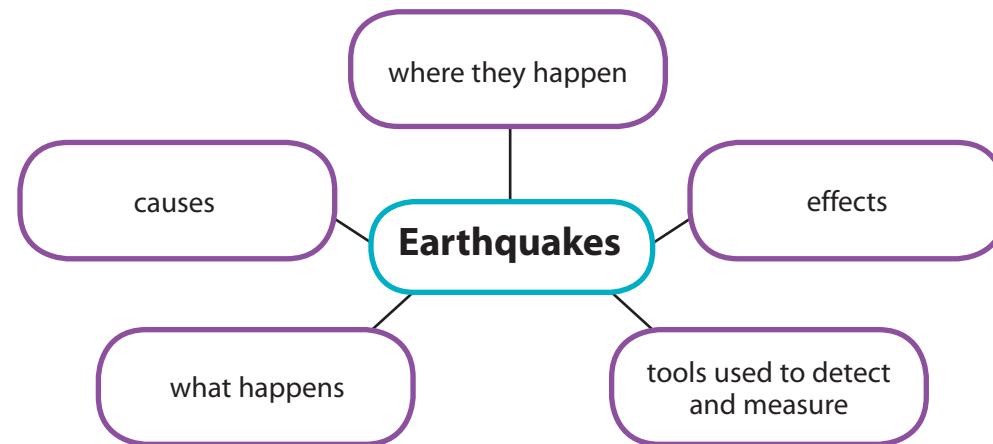
Web

Name _____



Earthquake Web

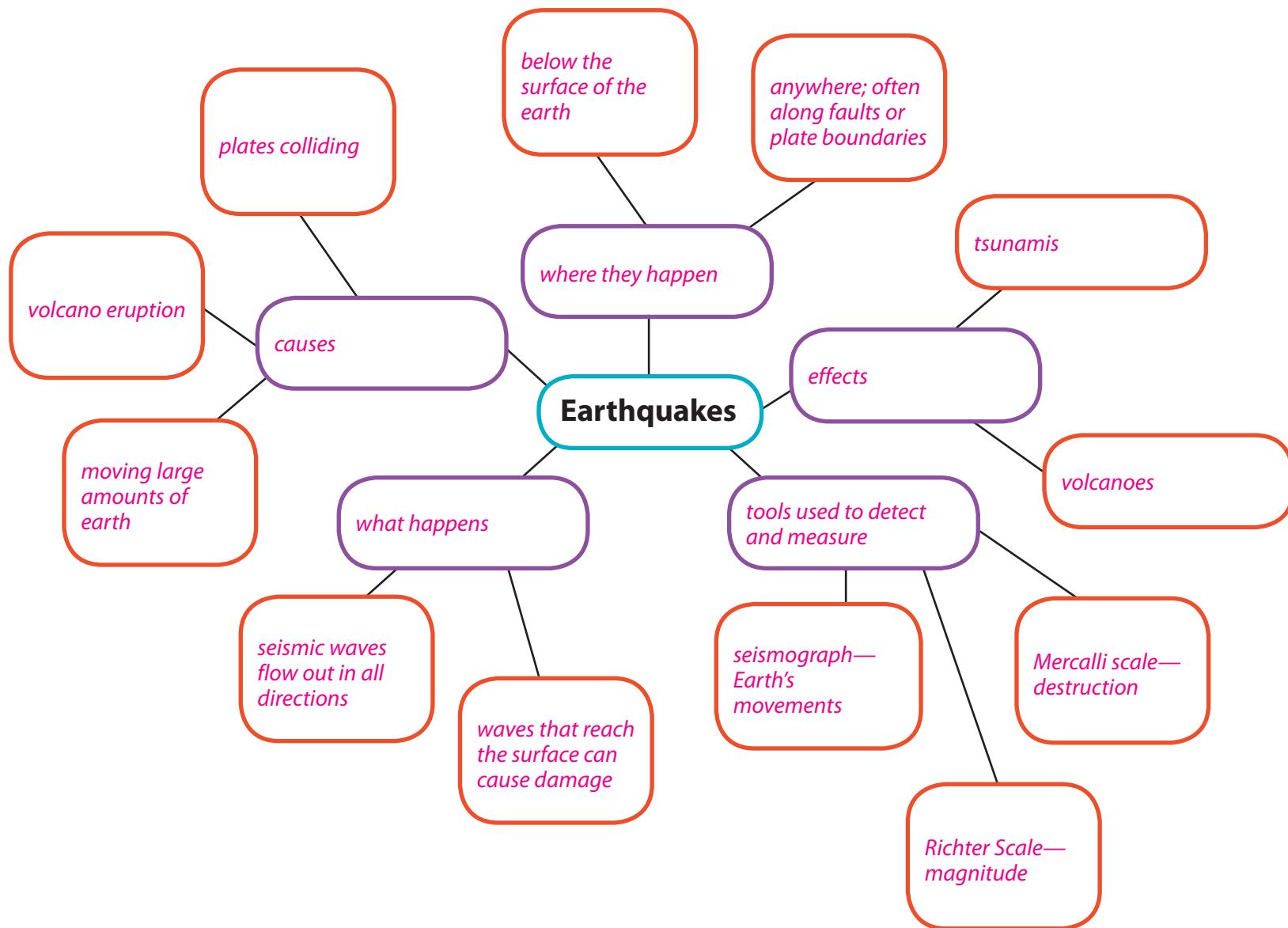
Name _____



Earthquake Web Key

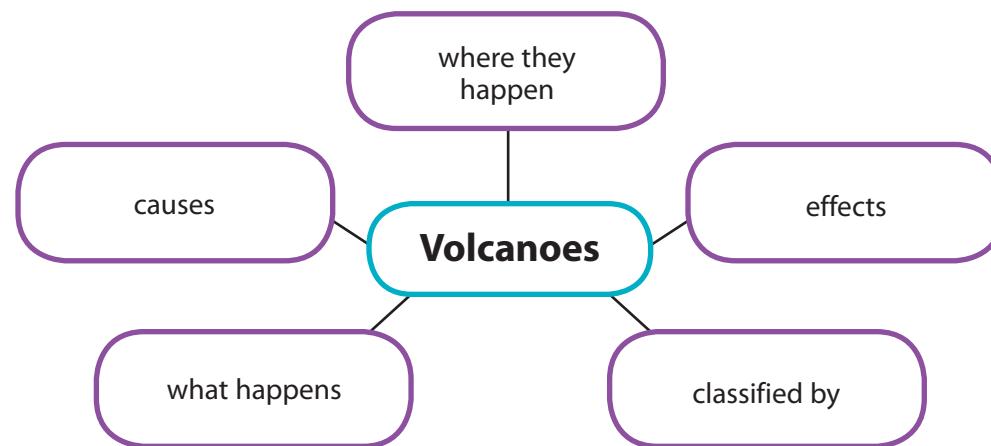
Name _____

Suggested web and answers. Definitions and descriptions may be added.



Volcano Web

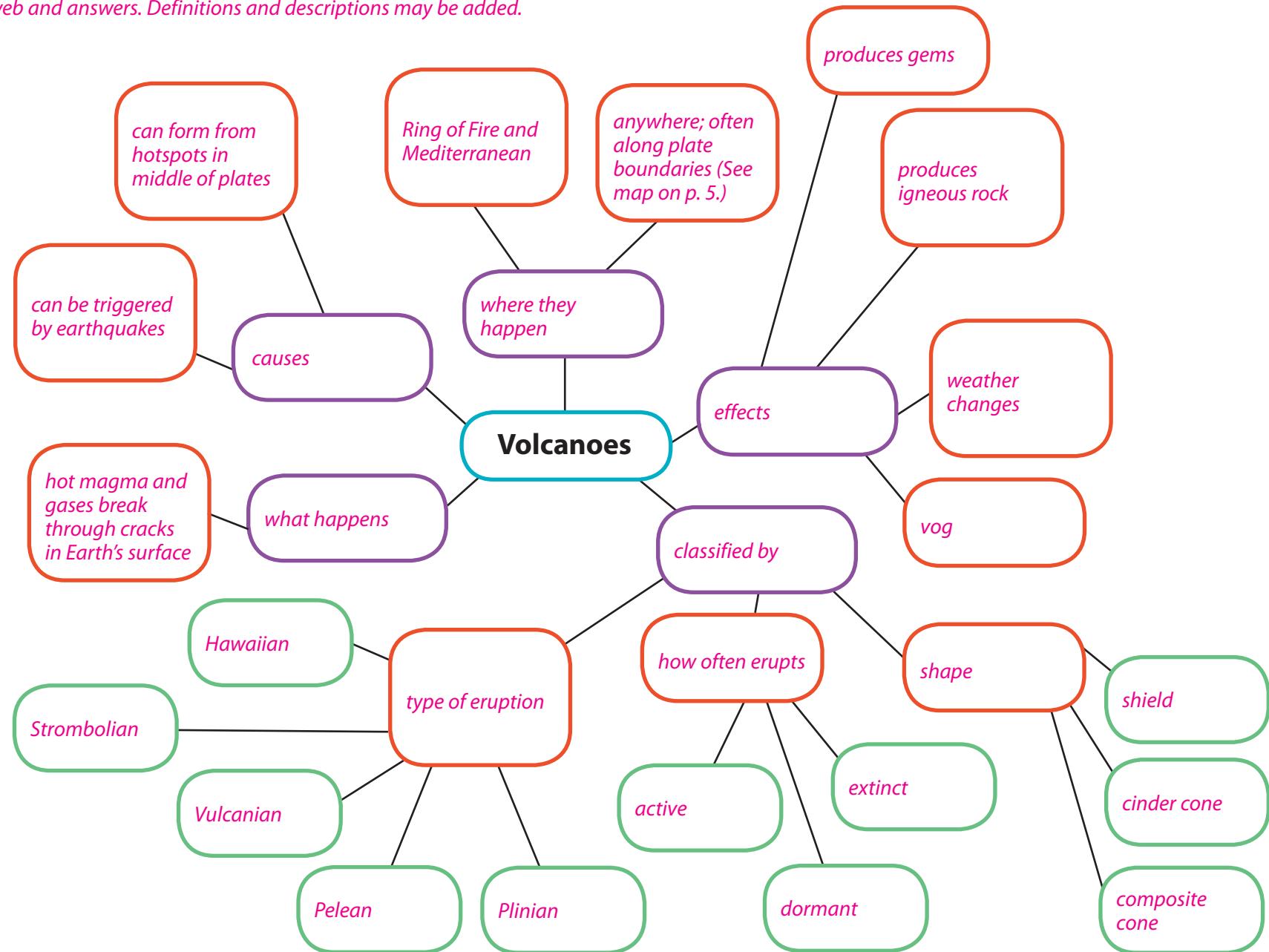
Name _____



Volcano Web Key

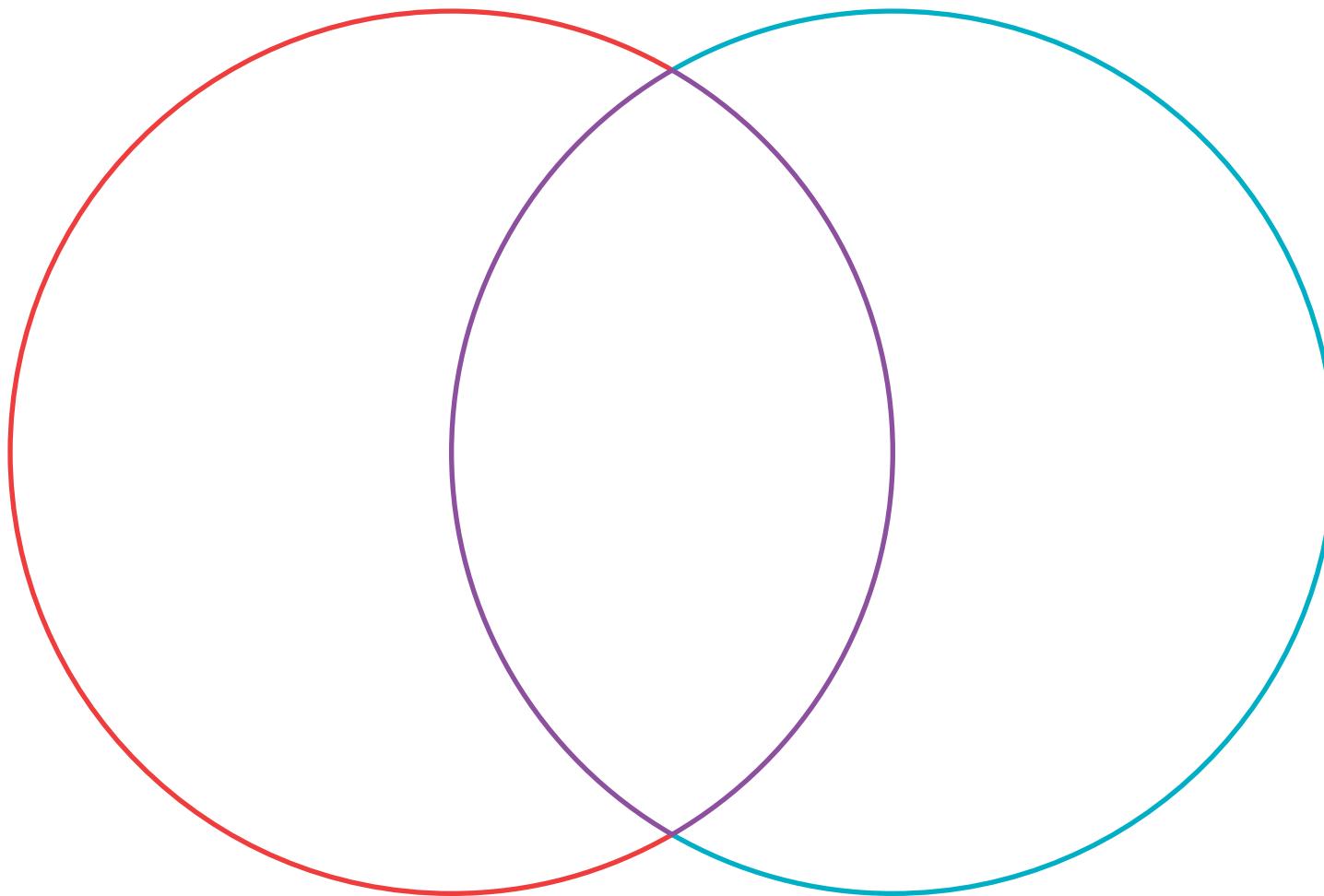
Name _____

Suggested web and answers. Definitions and descriptions may be added.



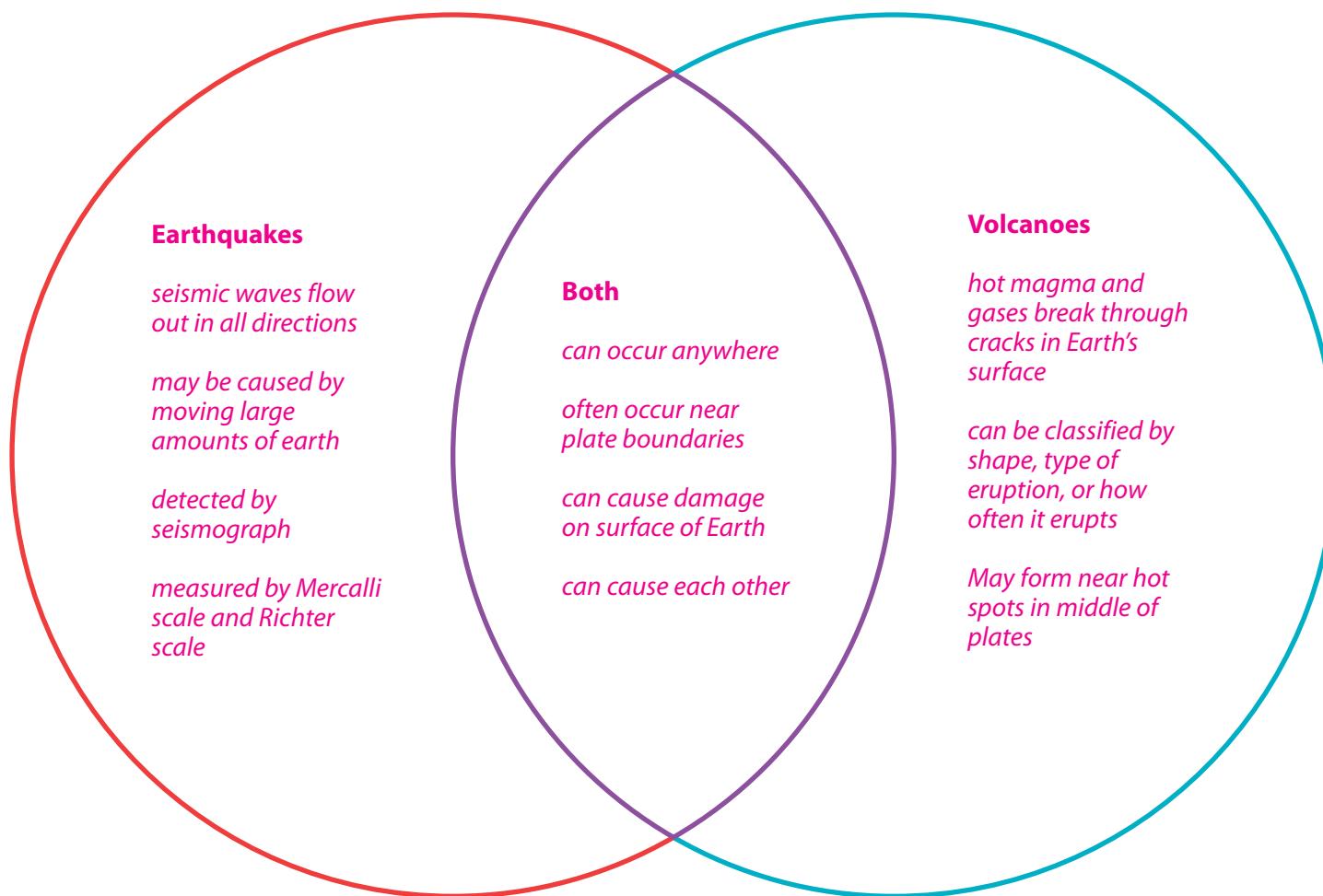
Venn Diagram

Name _____



Earthquake and Volcano Venn Diagram Key

Suggested answers.



Rock Changes

Form an “igneous rock”

Materials: old crayons, empty can (clean), water, saucepan, hot plate, tongs, ice cube tray

Remove all the paper from the old crayons. Break crayons and place in the can.

Fill the saucepan with water and put the can of crayons in the water. Use the tongs to hold the can upright. Do not let any water get inside the can. Heat the crayons 5–10 minutes until they are melted. Do not stir. Take the can out of the water and pour the melted crayons into the sections of the ice cube tray. Let cool until hardened. This may take 15–60 minutes. When cooled, pop out the new crayons.

Alternative method: Melting and forming the crayons may be done in a 250° oven with a foil muffin pan lined with paper muffin cups. Crayons should melt in about 10 minutes.

How were these new crayons formed? *from melted crayons*

What kind of rock are these crayons like? *igneous rock*

How does igneous rock form? *Hot, melted rock cools.*

Form a “sedimentary rock”

Materials: old crayons of various colors, crayon sharpener, waxed paper, heavy-duty aluminum foil, 2 small pieces of wood, vise

Weather one crayon at a time by sharpening it. Collect the shavings on waxed paper. Continue until you have a sizeable pile of shavings. Try to keep the shaving in layers. Push the shavings into the center of the waxed paper and fold the waxed paper around them like an envelope.

Wrap the waxed paper envelope in aluminum foil. Place that between the two small pieces of wood. Put the pieces of wood inside the vise and tighten it. Keep the vise in place for at least an hour. Loosen the vise. Remove the aluminum foil and waxed paper and display the “sedimentary rock.”

Note: Wood clamps can be used instead of a vise.

What kind of rock does this represent? *sedimentary* Why? *It was formed from pieces of crayon that were pressed together.*

Form a “metamorphic rock”

Materials: “sedimentary rock” from earlier demonstration, waxed paper, piece of fabric, iron

Fold waxed paper around the “sedimentary rock.” Cover the waxed paper with a piece of fabric. Press down firmly with a hot iron. Keep the iron moving over the fabric and apply pressure. After a few minutes, remove the “metamorphic rock” from the waxed paper.

What kind of rock does this represent? *metamorphic* Why? *It was formed with heat and pressure.*

Does it look the same as the sedimentary rock? *no*

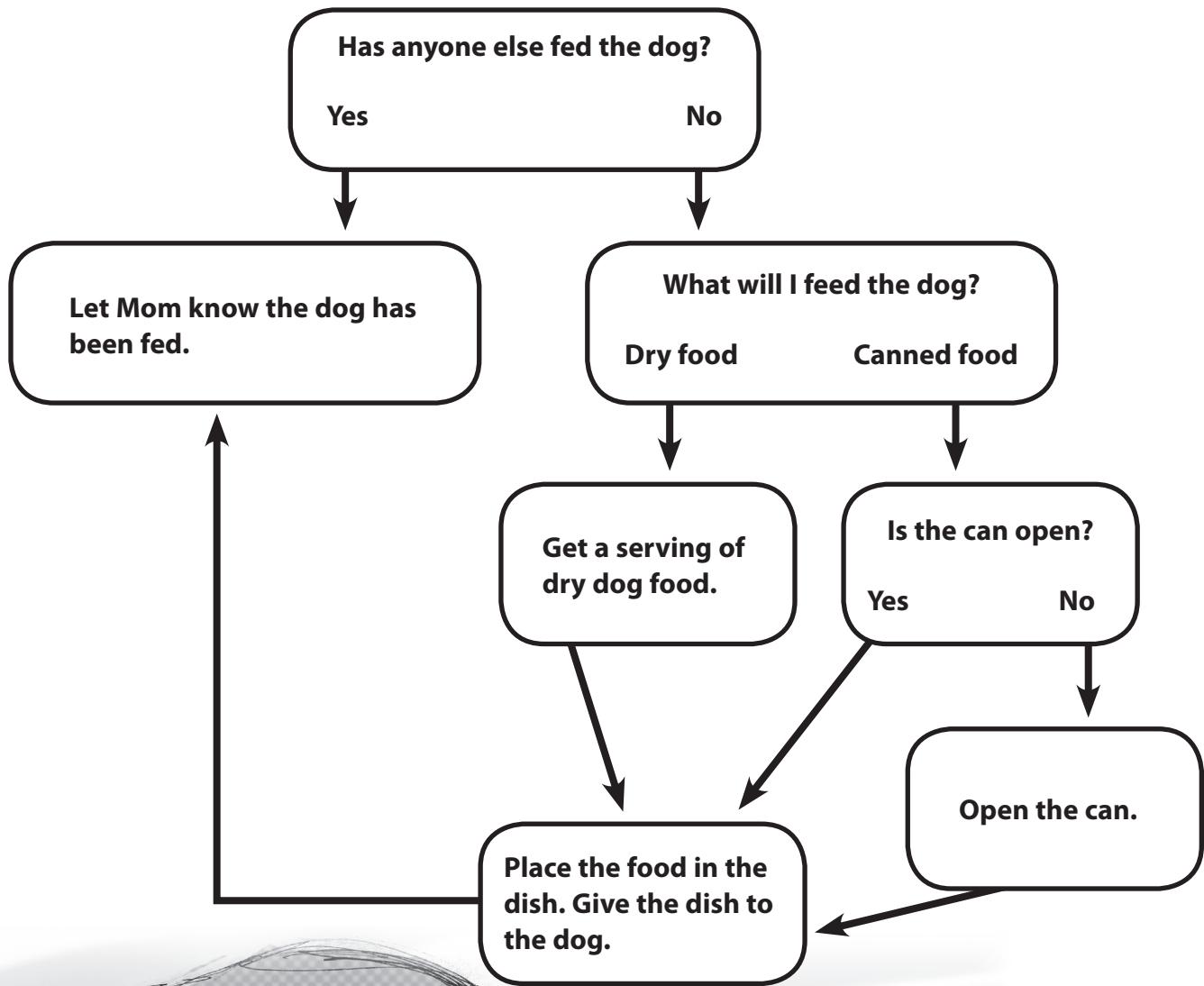
How does it look different? *It has a smoother, shinier appearance.*

How to Read a Flow Chart

Name _____

Begin at the top of the chart and follow the boxes as each decision is made.

Here is a possible thought process for when your Mom tells you to make sure the dog is fed.



Devils Postpile National Monument

Let's take a hike along the western slope of the Sierra Nevada Mountains in California. Here we find the Devils Postpile National Monument. President Theodore Roosevelt declared the park a national monument in 1911. He wanted to protect the Devils Postpile formation and Rainbow Falls. The park is small but rich in natural resources. In the park, the San Joaquin (wah KEEN) River winds through forests and small canyons. The meadows are full of flowers and grasses that provide food for the wildlife.



The 800-acre monument is near the resort community of Mammoth Lakes.

Volcanic Formation

Years ago Devil's Postpile formed from basalt lava. Basalt is a dark-gray, fine-grained rock containing feldspar crystals. This lava flowed from a vent and filled the valley. The molten lava cooled slowly and evenly. Shrinkage of the cooling lava caused stress on the formation. Surface cracks formed when the shrinkage was greater than the lava's strength. Each crack then branched, and a hexagonal pattern of cracks formed on the surface of the hardened lava. Gradually the cracks deepened, creating the six-sided columns you see today. This type of geologic formation is called columnar basalt and forms only under ideal conditions. It requires a slow cooling time and an even mineral composition of the lava. Devil's Postpile met these conditions. It is one of the world's finest examples of columnar basalt.



National Park Service

Columns of Devil's Postpile National Monument

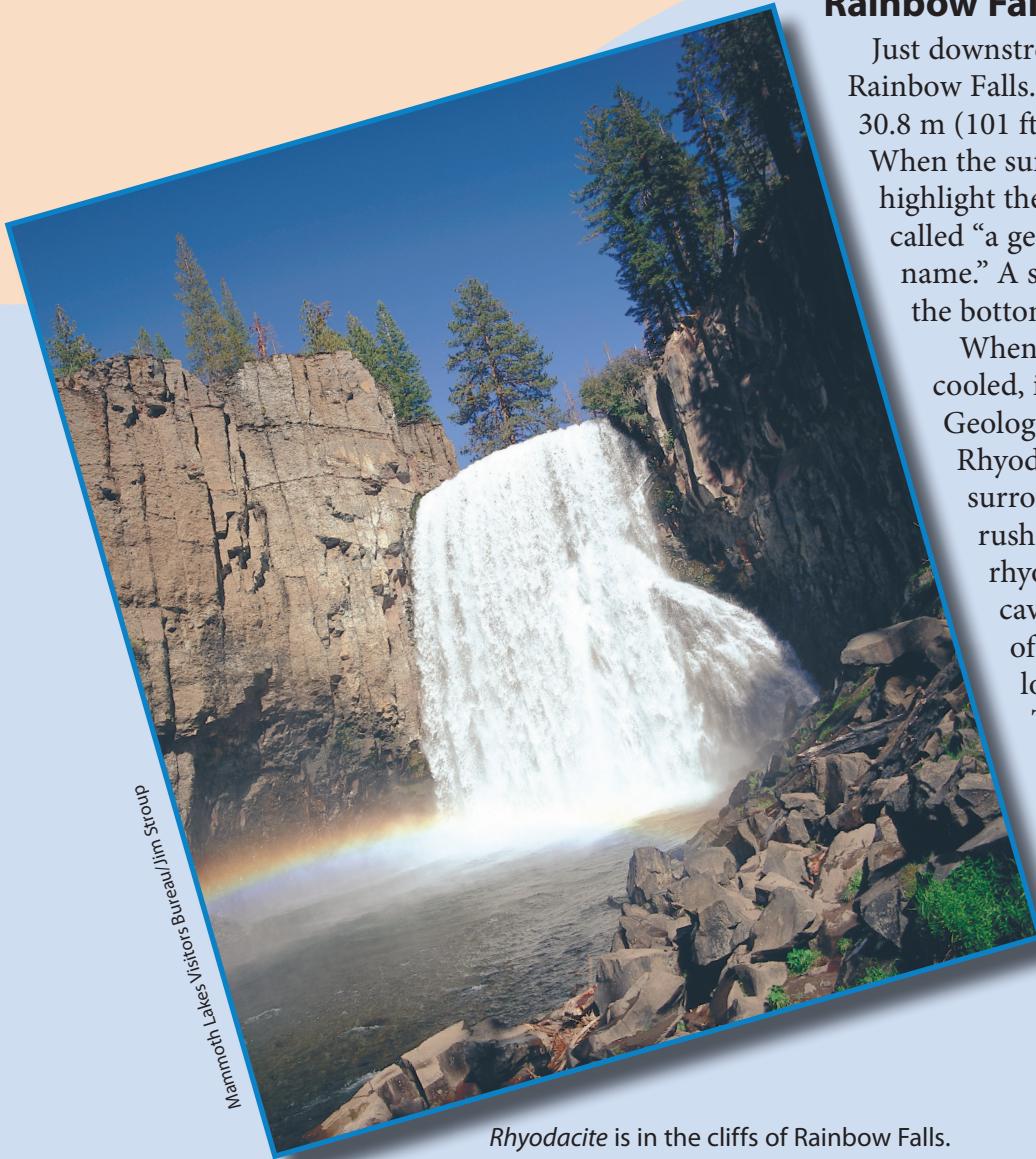
Glacier Erosion

Glaciers eroded most of the lava flows at Devils Postpile. The slow-moving ice cut away one side of the formation. The cutting away exposed a sheer wall of columns 18.3 m (60 ft) high. **Glacier polish** is evident on the tops of the columns. The polishing happened as glacial ice carrying silt scraped and smoothed off the upper part of the lava flow. The glaciers also left behind deep grooves called **striations** (stry AY shunz).



Glacier polish looks like floor tiles on top of the columns.

USGS



Mammoth Lakes Visitors Bureau/Jim Stroup

Rhyodacite is in the cliffs of Rainbow Falls.

Rainbow Falls

Just downstream from Devils Postpile is Rainbow Falls. The San Joaquin River drops 30.8 m (101 ft) over a cliff of volcanic rock. When the sun is overhead, rainbows highlight the falls. Rainbow Falls was once called “a gem unique and worthy of its name.” A stairway and short trail lead to the bottom of the falls.

When the lava in the upper layer cooled, it fractured horizontally. Geologists call these rocks **rhyodacite**. Rhyodacite is visible in the cliffs that surround Rainbow Falls. As water rushes over the cliff, it erodes the rhyodacite more easily. A small cavern begins to form at the base of the falls. The overlying rock loses its support and collapses. This process, known as **undercutting**, causes the waterfall to recede upstream slowly. Rainbow Falls has receded about 152.4 m (500 ft) due to undercutting.

Water in Israel

Name _____

Because some of the country of Israel is hot and dry, water is an especially important resource. The country's usable water, from both rivers and aquifers, is already being used to its limit. As the country's population grows, the stress on its water system grows as well. Consequently, Israel has a number of desalination plants to help supplement its fresh water supply.

Conflicts Over Water

Israel shares many water sources with its neighboring countries—Syria, Lebanon, and Jordan—as well as with its own Palestinian occupied areas. Conflicts sometimes develop over how much water each area is allotted. But disputes over water in the Middle East are not new. As far back as Abraham's time, wells were often a source of conflict. Digging wells in Bible times was an important but difficult task. Wells were considered the property of the person who dug them, and usually they were passed on as an inheritance just as land was. To take over a well that someone else had dug was considered stealing. In Genesis 21 Abraham reproves the leader of the Philistines, Abimelech, because Abimelech's servants had violently taken over a well that Abraham's servants had dug. Abraham and Abimelech made a covenant to establish Abraham's ownership of the well. Abraham called the place of the well Beersheba.

After Abraham died, the Philistines filled the wells that he had dug with dirt. When Abraham's son Isaac opened each of the wells and found water, the herdsmen of the area fought to gain control of the wells. Isaac moved on to another well that was fought over also. Finally he came to Beersheba. At Beersheba, Isaac's servants again dug a well and found water. Abimelech recognized that Isaac was blessed by God and reestablished a covenant with Isaac as he had with Abraham.



modern Middle East

Sources of Water

Wells were the cleanest sources of water in ancient Israel. They usually had a spring or some source of water flowing into them. A short wall of limestone or stone often surrounded wells. The wall helped protect people and animals from falling into a well. Often the wells would have a stone cover that would have to be removed to draw water from the well. Because the wells were often used for watering flocks, they usually had a trough of wood or stone nearby into which water could be poured to allow the flocks to drink.

Usually the women in a household were responsible for drawing water for the family. Typically, women would draw water early in the day and toward evening. Water was drawn by dropping a vase or waterskin attached to a rope into the well. Some wells were dug into the limestone and had steps descending into them.

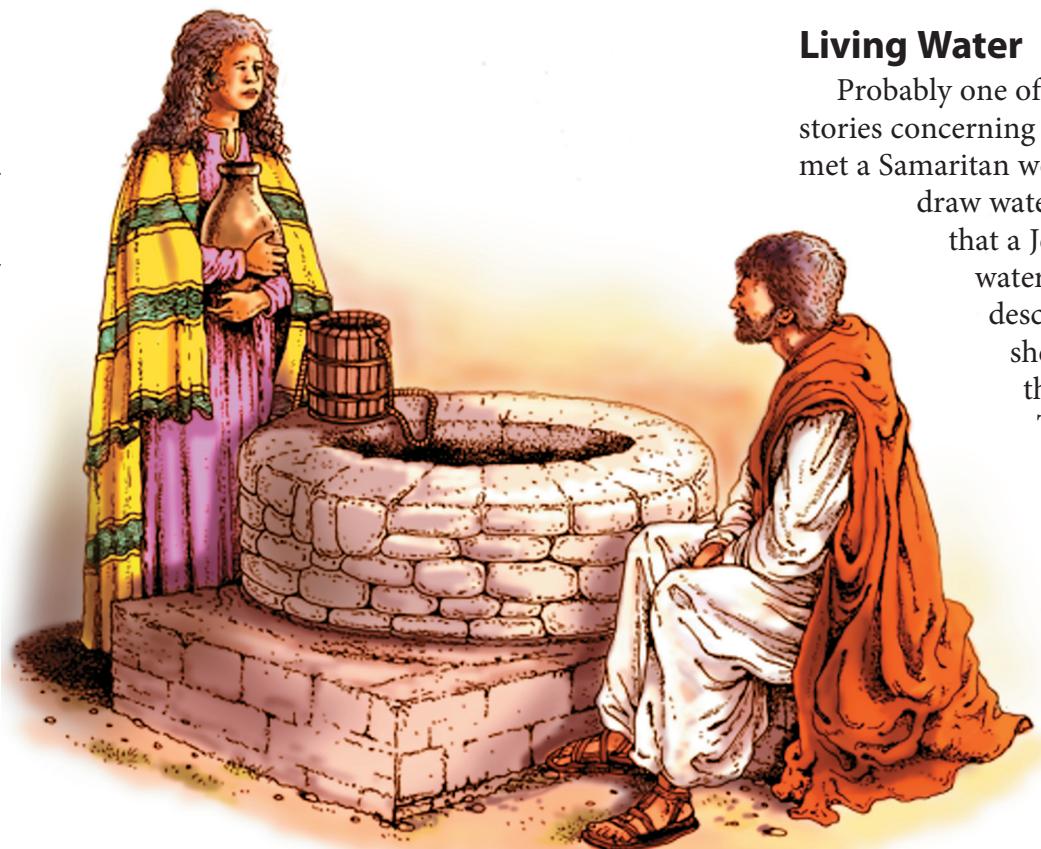


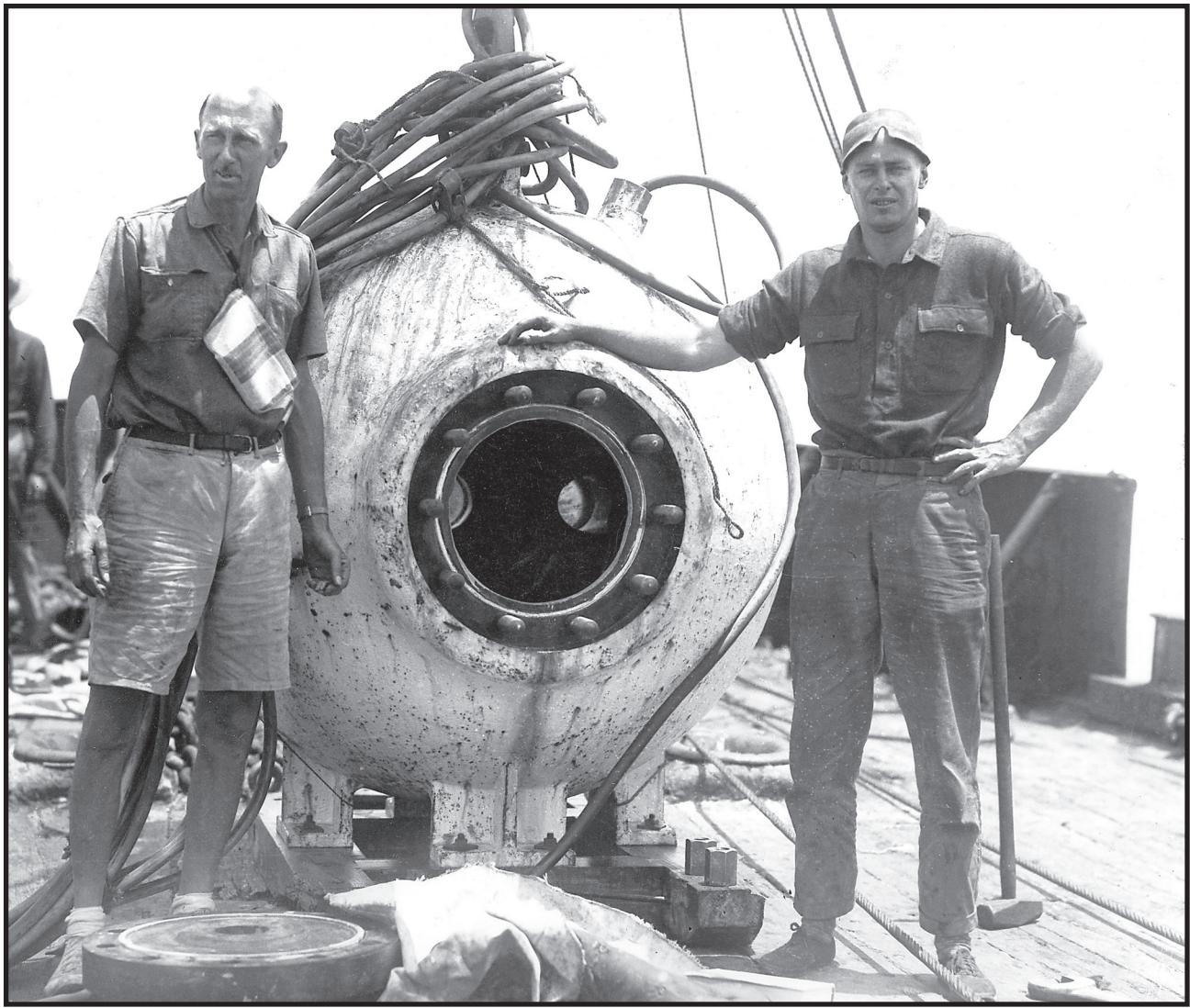
A large stone protected the well from dirt and smaller stones.

Another source of water in ancient Israel was cisterns. Cisterns were holes carved into rock that served as a storage place for water. They were often lined with a special type of plaster or clay to prevent leaking. Cisterns did not have a natural source of water like a well. Instead, water was directed to flow into them and fill them. The water that ran off rooftops during the rainy months was usually directed into a cistern. The stored water could then be used during the dry months.

Living Water

Probably one of the most well-known Bible stories concerning a well is found in John 4. Jesus met a Samaritan woman at the well. He asked her to draw water for him to drink. Surprised that a Jew would ask a Samaritan for water, she questioned Jesus. He described for her living water that she could obtain. She would never thirst again. What was this water? The gift of salvation that God offers to all men. No conservation is needed for the living water. It is freely available in abundance for all those who seek for Christ.

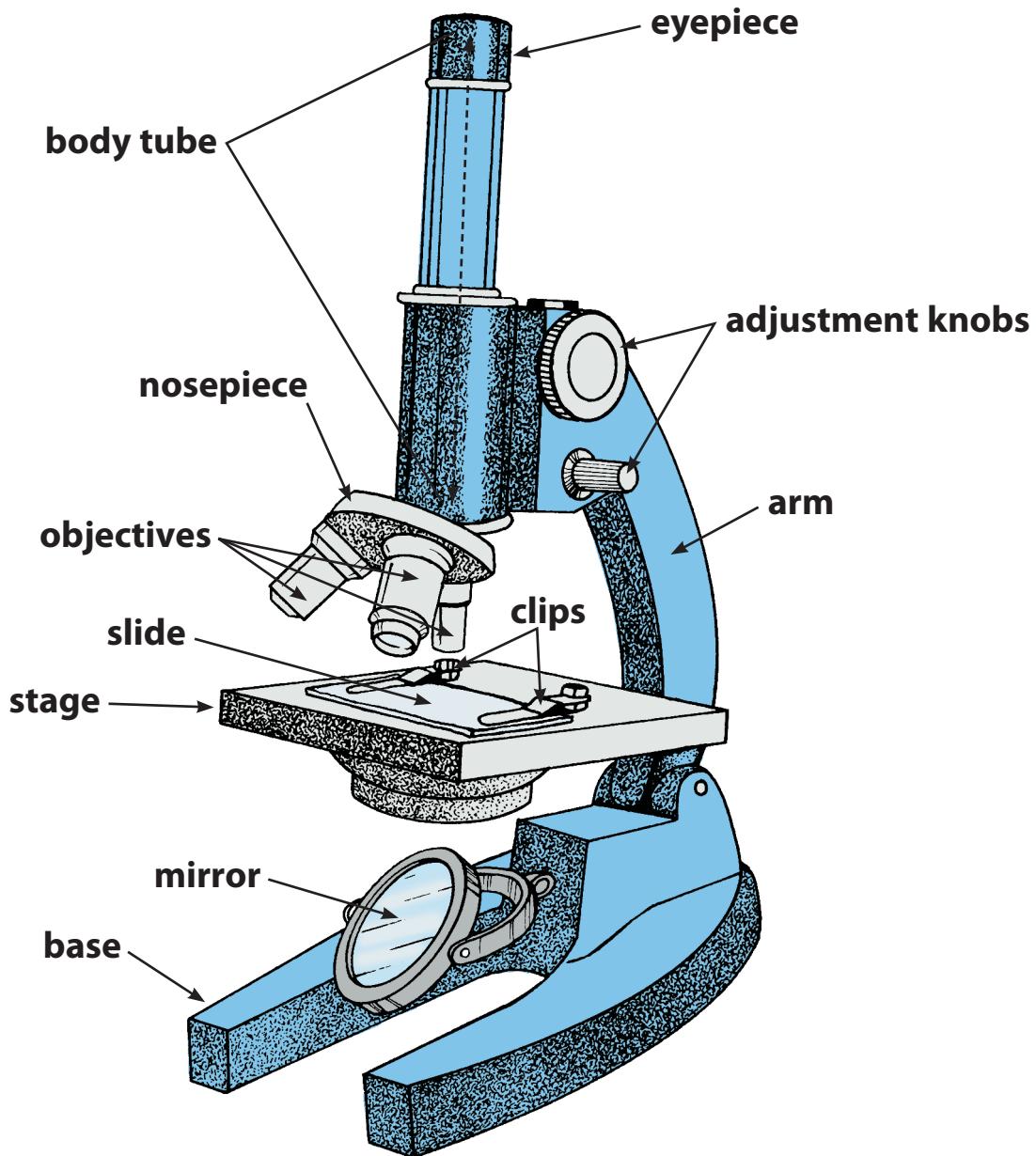




NOAA

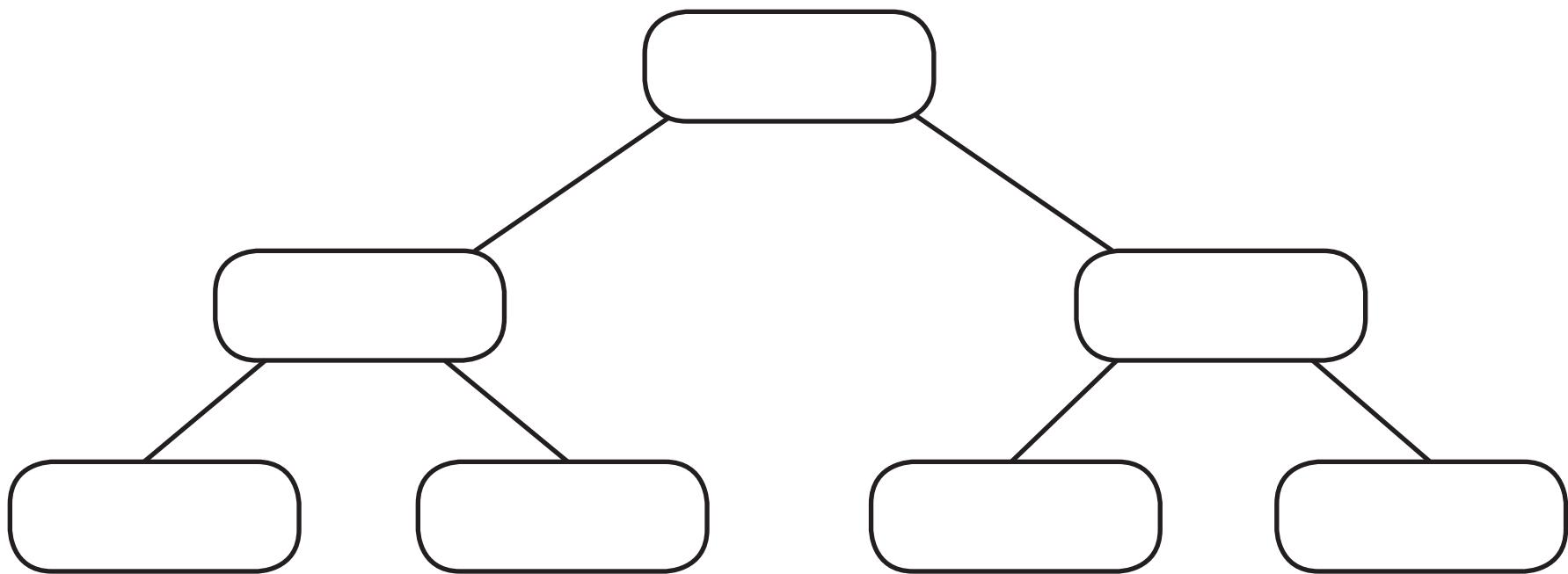
Beebe and Barton with bathysphere on June 6, 1930

The Microscope



Flow Chart

Name _____



The Living Kingdoms

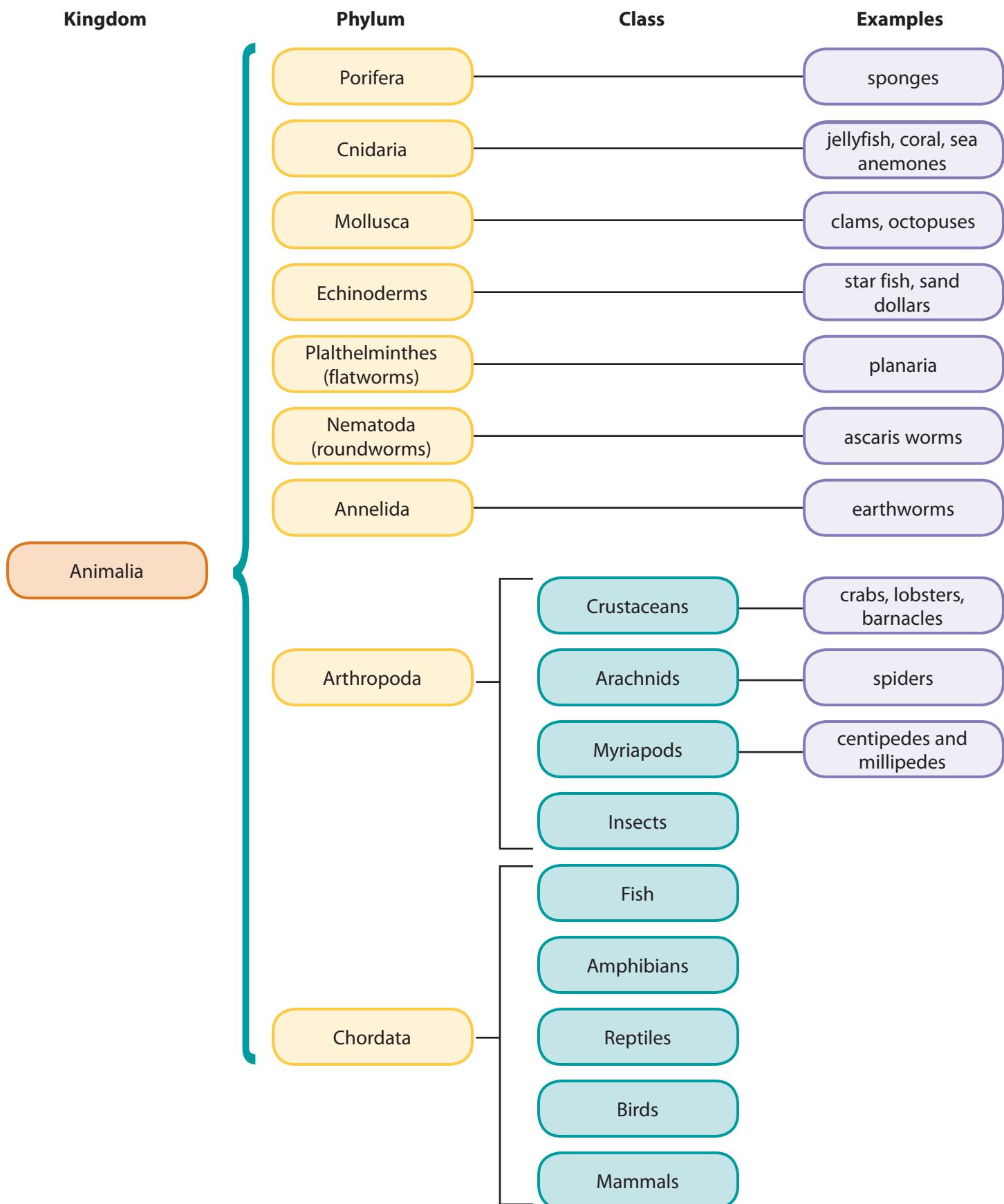
Complete the information about each kingdom.

Kingdom: _____ <input type="checkbox"/> unicellular <input type="checkbox"/> multicellular characteristics: examples:	Kingdom: _____ <input type="checkbox"/> unicellular <input type="checkbox"/> multicellular characteristics: examples:
Kingdom: _____ <input type="checkbox"/> unicellular <input type="checkbox"/> multicellular characteristics: examples:	Kingdom: _____ <input type="checkbox"/> unicellular <input type="checkbox"/> multicellular characteristics: examples:
Kingdom: _____ <input type="checkbox"/> unicellular <input type="checkbox"/> multicellular characteristics: examples:	Kingdom: _____ <input type="checkbox"/> unicellular <input type="checkbox"/> multicellular characteristics: examples:

Answer the question.

What makes humans different from animals? _____

Animal Classification



Observation Log

Name _____

Vertebrate Characteristics

Fish	Amphibians	Reptiles	Birds	Mammals
Have a backbone	Have a backbone	Have a backbone	Have a backbone	Have a backbone
Cold-blooded	Cold-blooded	Cold-blooded	Warm-blooded	Warm-blooded
Lay eggs	Lay eggs	Most lay eggs	Lay eggs	Most do not lay eggs
Breathe through gills	Most breathe through gills when young and breathe through lungs as adults	Breathe with lungs	Breathe with lungs	Breathe with lungs
May have scales	Do not have scales and have thin skin (permeable)	Have scales	Have feathers	Have hair
	Most go through metamorphosis			

Mammal Orders

	Order	Description	Examples
Platypus 	Monotremes	Mammals that lay eggs	platypus, echidna
Kangaroo 	Marsupials	Mammals whose young develop in pouches outside the mother's body	kangaroos, koalas, wallabies, opossums
Rat 	Rodentia	Have large front teeth that never stop growing	rats, mice, squirrels, beavers, porcupines, capybara
Rabbit 	Lagomorpha	Hind legs used for hopping	rabbits, hares
Mole 	Insectivores	Eat insects as primary food, are digging mammals	shrews, moles
Bat 	Chiroptera	Flying mammals	bats
Horse 	Artiodactyla	Hoofed mammals with an odd number of toes	horses, zebras, burros, mules, tapirs, rhinoceroses
Sheep 	Perissodactyla	Hoofed mammals with an even number of toes	deer, giraffes, camels, cattle, sheep, antelopes, hippopotamuses
Bear 	Carnivora	Most eat mainly meat	lions, wolves, bears, pinnipeds
Whale 	Cetacea	Marine mammals with blowholes	dolphin, whales, porpoises
Monkey 	Primates	Have "hands" that can grasp things	lemurs, monkeys, apes
Manatee 	Sirenia	Aquatic mammals that do not have blowholes	manatees, dugongs
Armadillo 	Cingulata (also called Xenarthra)	Have few teeth	armadillo, sloth, anteater

Kinds of Circuits

Name _____

Use the key to match each picture of a circuit with the correct schematic drawing.

KEY

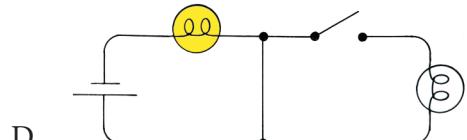
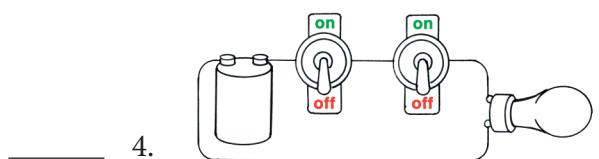
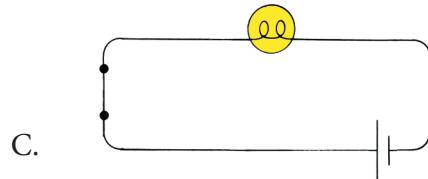
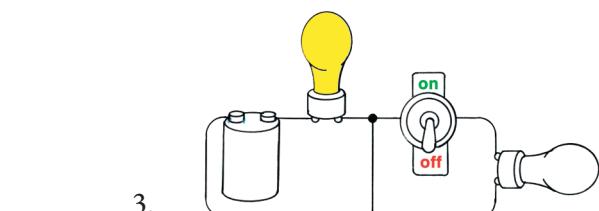
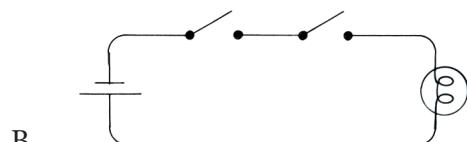
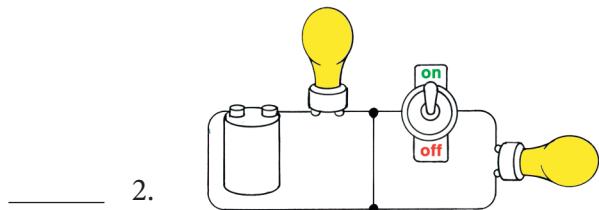
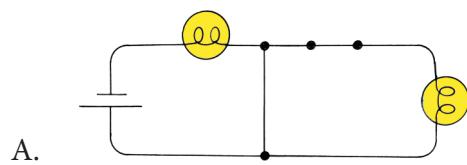
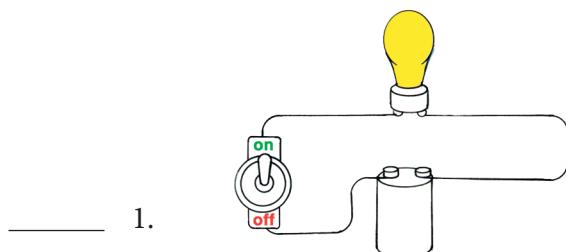
wire ———

open switch —•— •—

closed switch —•— •—

light bulb (○)

battery (—+—)



Famous Inventors and Discoveries

Name _____

Years	Description	Examples
1745–1827	Alessandro Volta	battery; volt
1775–1836	Andre-Marie Ampere	flow of a current
1790–1845	John Frederic Daniell	battery for telegraph systems
1791–1867	Michael Faraday	electric motor, generator, and transformer
1791–1872	Samuel F. B. Morse	telegraph
1797–1878	Joseph Henry	electromagnet
1818–1889	James Joule	conductors; mechanical advantage of heat; Joule's law
1847–1922	Alexander Graham Bell	telephone
1847–1931	Thomas Edison	light bulb
1856–1943	Nikola Tesla	alternating current
1864–1930	Sebastian Ferranti	high voltage generation stations; alternating current
1873–1961	Lee de Forest	vacuum tube; sound amplifier
1876–1958	Charles Franklin Kettering	electric ignition for autos
1905–1995	S. Joseph Begun	magnetic recording
1906–1968	Chester F. Carlson	electrophotography (photocopying)
1914–2009	Bessie Blount	device to help disabled veterans
1916–1995	Marvin Camras	magnetic recording
1919–2011	Dr. Wilson Greatbatch	implantable pacemaker
1920–1982	Otis Boykin	resistor; device for guided missiles and computers
1936–	Raymond Damadian	magnetic resonance imaging (MRI) machine

Electronics Everywhere

Name _____

Every day we use many electronic things. Some of these things we may not even realize are electronic. What makes something electronic? An electronic device takes an electric current and uses it to communicate information. Using the binary number system, electronic devices interpret the open and closed circuits to relay information. In order for something to be electrical only, the device would merely have an on/off switch and use electricity to make it run.

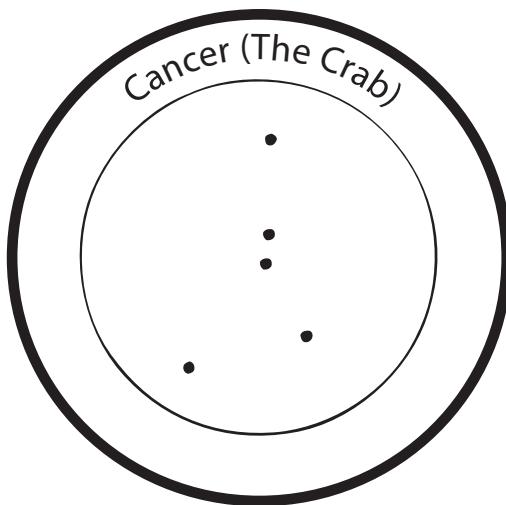
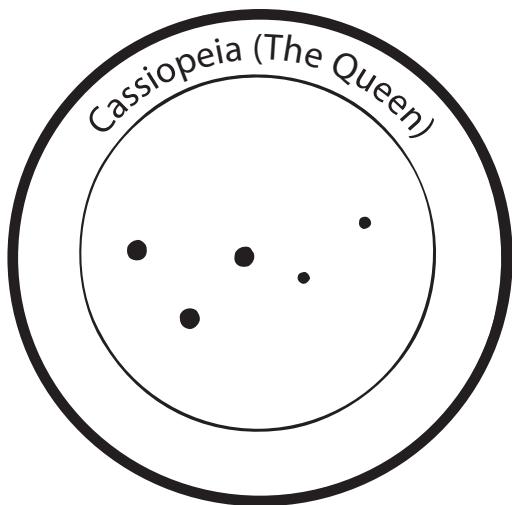
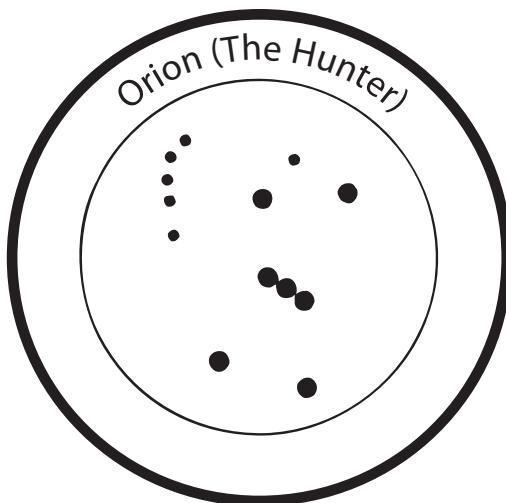
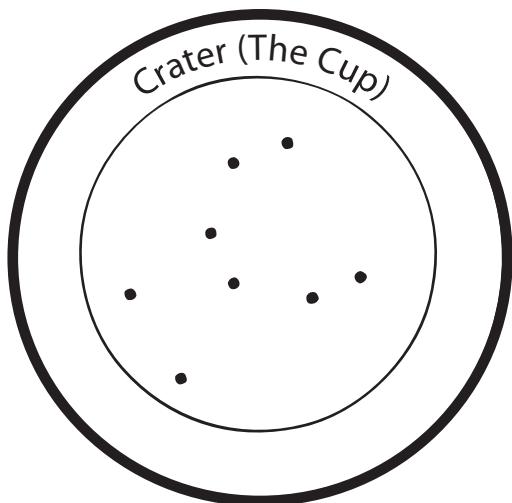
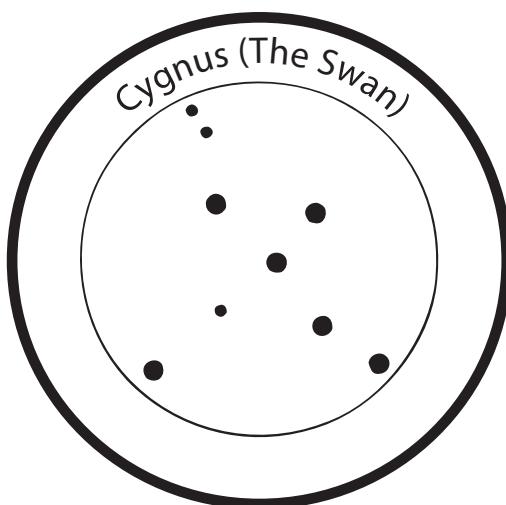
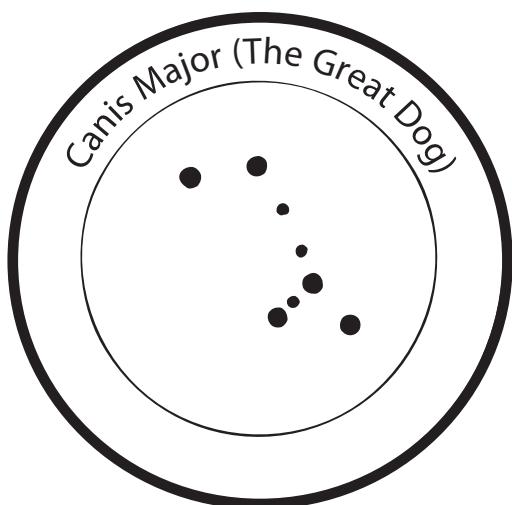


A. Record the devices in your home and identify them as electronic or electrical. In the Reason column, write a short phrase to describe why that device fits into the category. Examples are given.

B. Be creative! On your own paper, pick one of the electric devices listed in the chart. Write a paragraph describing a way to make it electronic. Describe your device's function. You may want to use these questions: What could you change about the device? What could you improve to make the device work better? Could you combine it with one of the electronic devices?

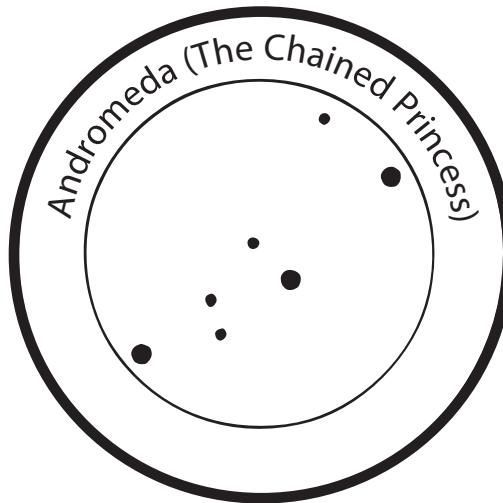
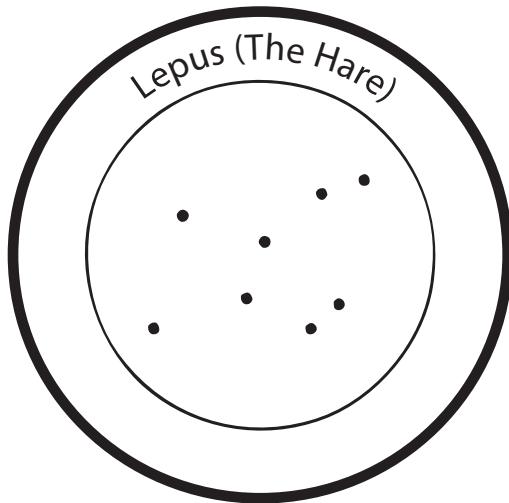
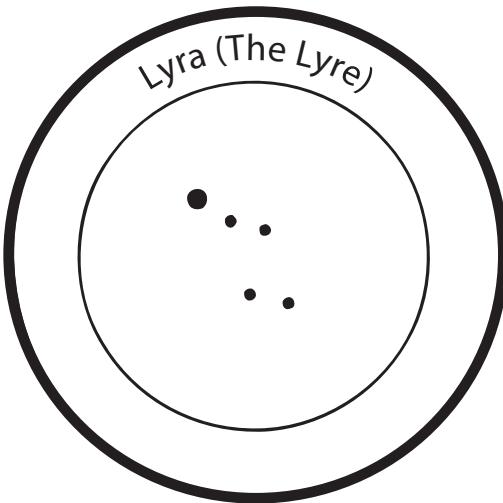
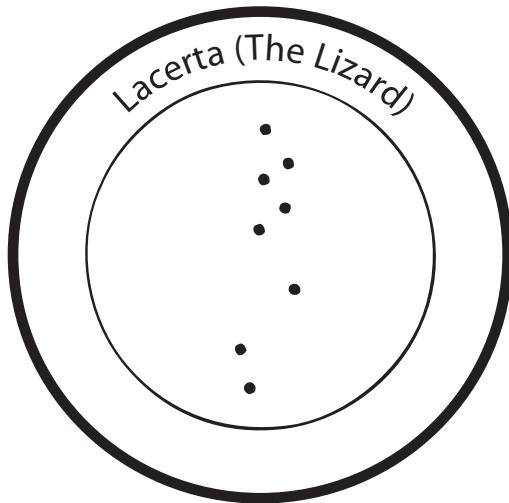
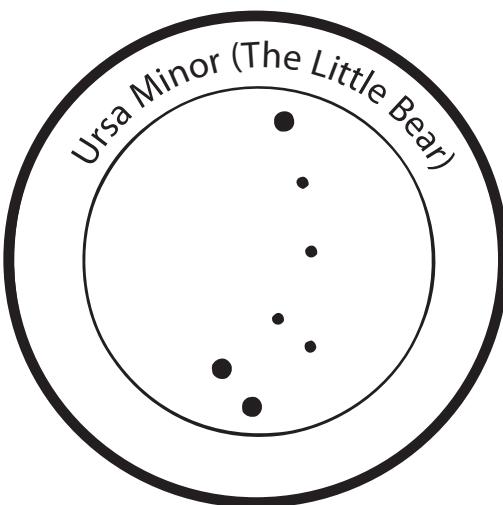
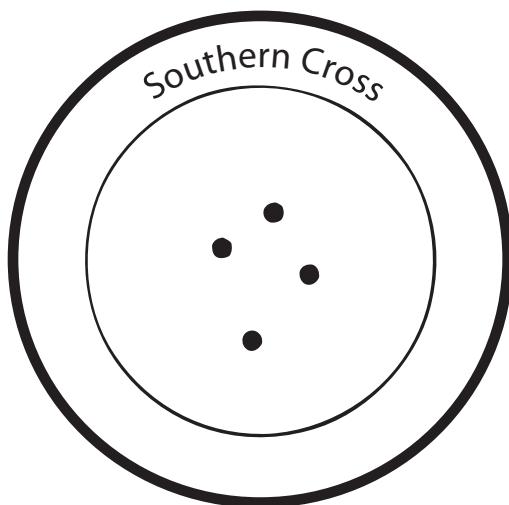
Constellation Patterns

Name _____



Constellation Patterns

Name _____



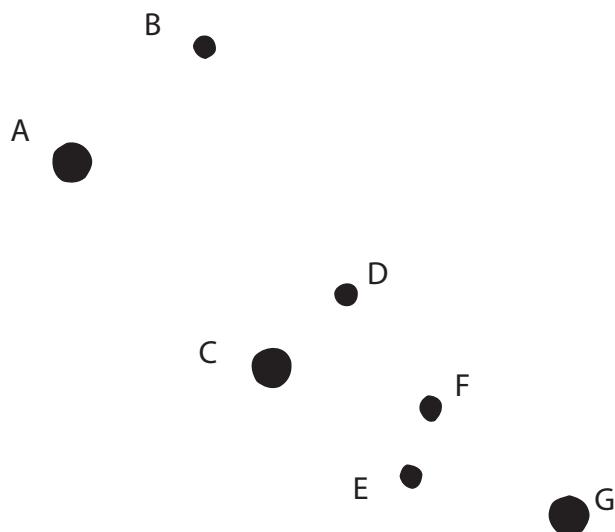
Star Coordinates

Andromeda

(x, y) coordinates

(x, y) coordinates	Length
A (2, 12)	8 cm
B (7, 6)	5 cm
C (9, 6.5)	14 cm
D (11, 4.5)	11 cm
E (13, 3.5)	18 cm
F (13, 22)	15 cm
G (7, 3)	19 cm

y coordinates 1 square = 30 light years

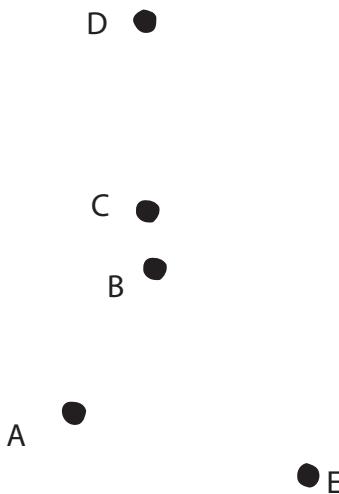


Cancer

(x, y) coordinates

(x, y) coordinates	Length
A (4, 5)	19 cm
B (8, 7)	13 cm
C (9, 6)	11 cm
D (8, 17)	5 cm
E (15, 7.5)	21 cm

y coordinates 1 square = 25 light years



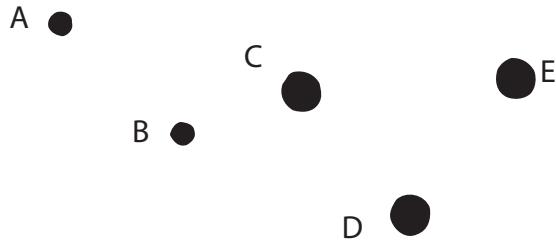
Star Coordinates

Cassiopeia

(x, y) coordinates

	Length
A (2, 15)	9 cm
B (7, 2)	12 cm
C (11, 21)	12 cm
D (12, 3.5)	15 cm
E (16, 1)	13 cm

y coordinates 1 square = 40 light years

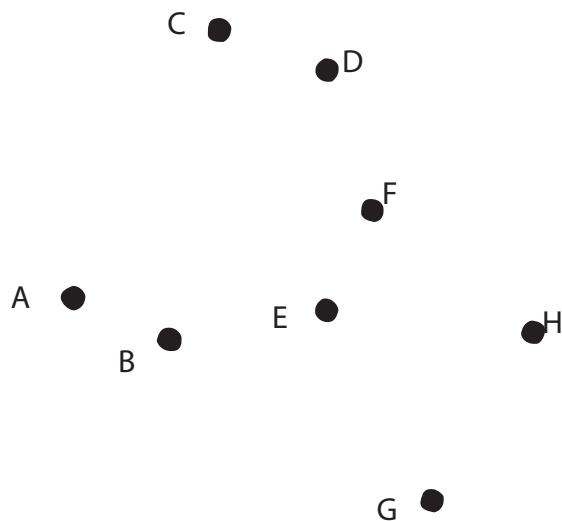


Crater

(x, y) coordinates

	Length
A (1, 18)	12 cm
B (4, 7.5)	13 cm
C (6, 17)	5 cm
D (10, 23.5)	6 cm
E (10, 5.5)	12 cm
F (11, 5)	10 cm
G (13, 4)	16 cm
H (16, 7.5)	13 cm

y coordinates 1 square = 15 light years



Star Coordinates

Cygnus

(x, y) coordinates

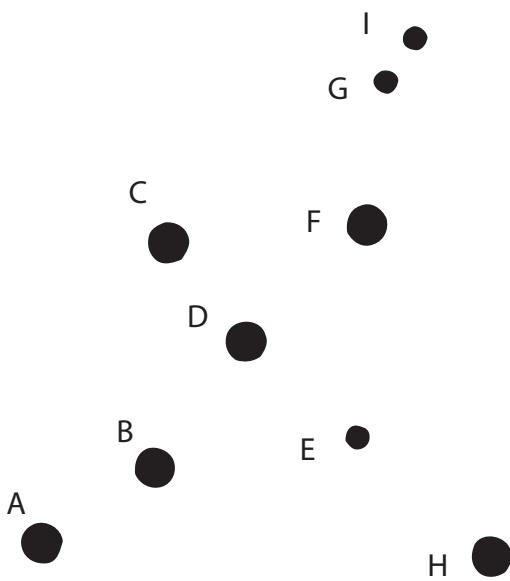
A (1,1)
B (4, 0.5)
C (5, 21)
D (7, 10)
E (10, 1)
F (12, 1)
G (14, 0.75)
H (14, 2.5)
I (15, 0.75)

Length

24 cm
21 cm
12 cm
16 cm
20 cm
12 cm
7 cm
26 cm
5 cm

y coordinates

1 square = 150 light years



Lyra

(x, y) coordinates

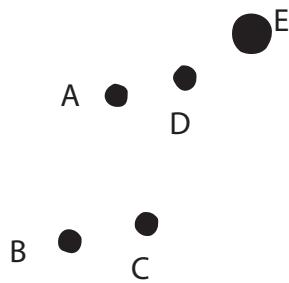
A (5, 4)
B (8, 16)
C (10, 4)
D (12, 2)
E (16, 0.5)

Length

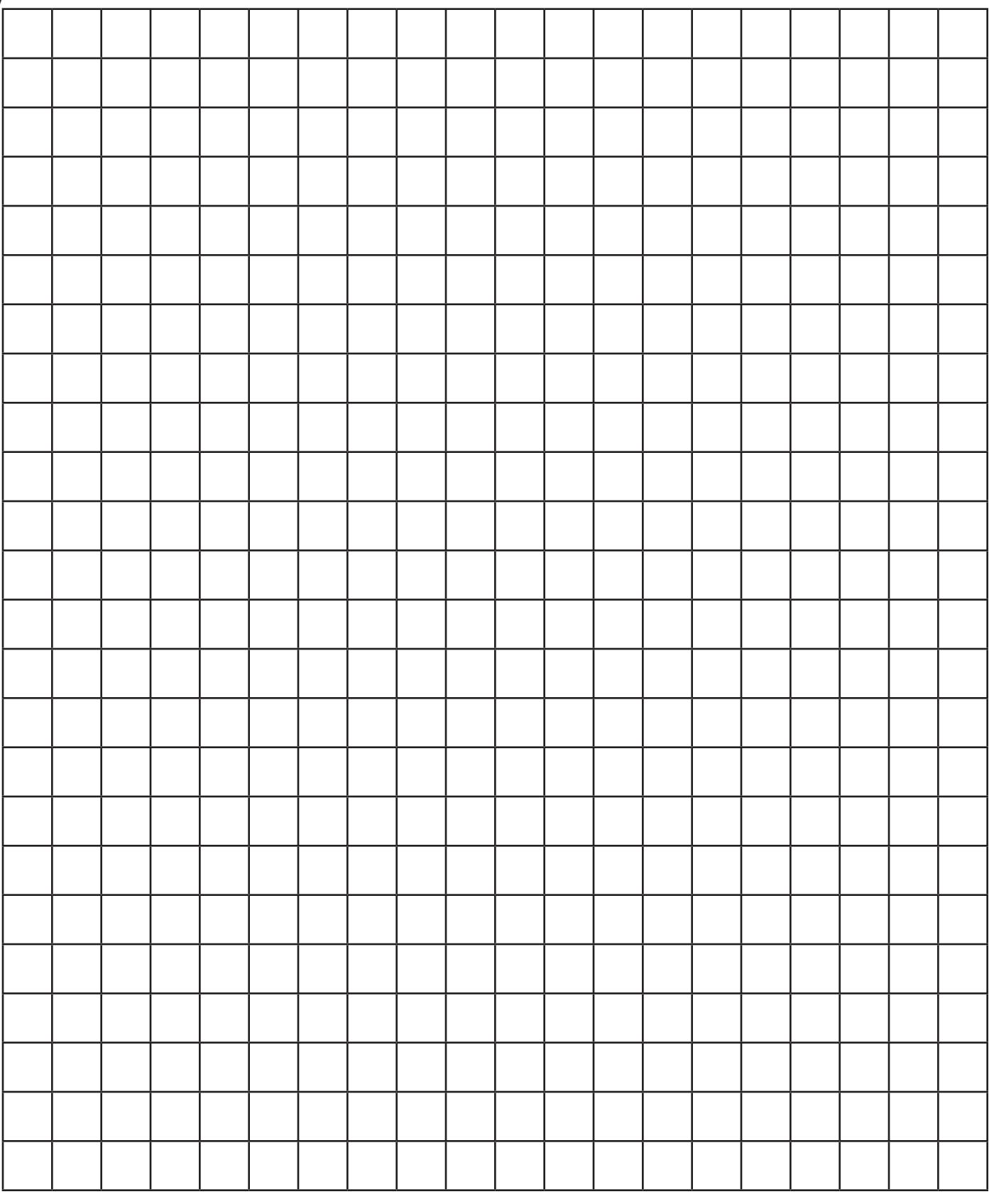
16 cm
8 cm
14 cm
7 cm
6 cm

y coordinates

1 square = 50 light years



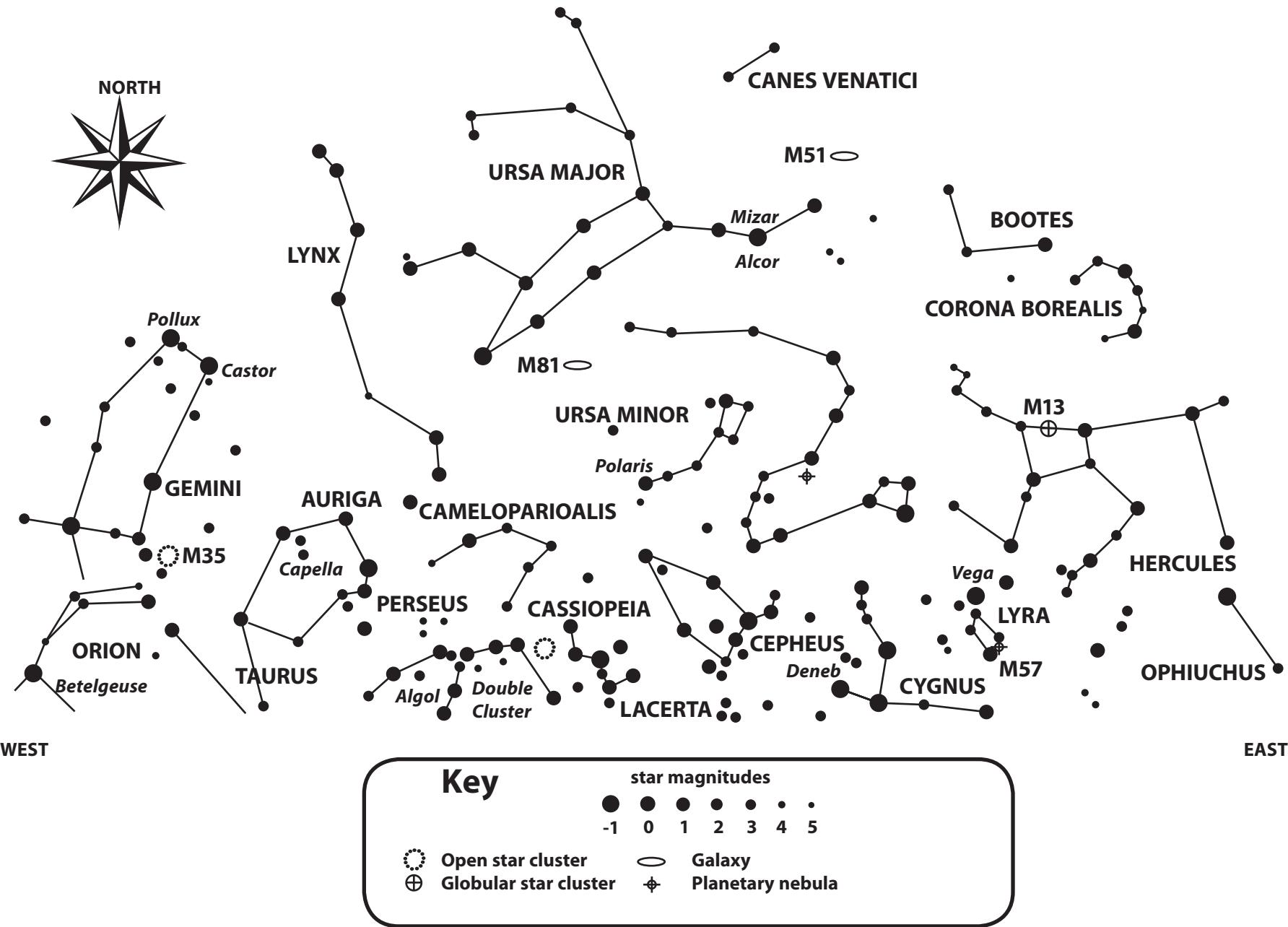
y



x

Stargazing

© 2013 BJU Press. Unauthorized reproduction prohibited.



Dear Parent,

In this unit of science we will be covering plant and animal reproduction in Chapter 12 and genetics in Chapter 13. Please understand that we will not be discussing human reproduction at any point in the unit. We believe that for children of this age, communication of that information is the responsibility of the parents. Our concern, however, is that this unit may spark questions from your child that you will need to be prepared to address at home. This may require the acquisition of some appropriate literature or other means of explanation if you have not covered this subject matter already. Please feel free to read each chapter with or ahead of your child.

Thank you,

Dear Parent,

In this unit of science we will be covering plant and animal reproduction in Chapter 12 and genetics in Chapter 13. Please understand that we will not be discussing human reproduction at any point in the unit. We believe that for children of this age, communication of that information is the responsibility of the parents. Our concern, however, is that this unit may spark questions from your child that you will need to be prepared to address at home. This may require the acquisition of some appropriate literature or other means of explanation if you have not covered this subject matter already. Please feel free to read each chapter with or ahead of your child.

Thank you,



PLANT CITY TIMES



by _____

Coded Instructions

Name _____

Morse Code

A	B	C	D	E	F	G
•—	—•••	—•••	—••	•	••—•	—•—•
H	I	J	K	L	M	N
••••	••	•---	—•—	•—••	——	—•
O	P	Q	R	S	T	U
—---	•---•	—•—	•—•	•••	—	••—
V	W	X	Y	Z		
•••—	•——	—••—	—•——	——••		

Decode the message written in Morse code.

—•• —• •— | •• ••• | — •••• •

—•—• •••• • —— •—•—• •— •—•— —•• •

— •••• •— — | — • •—•• •—•• •••

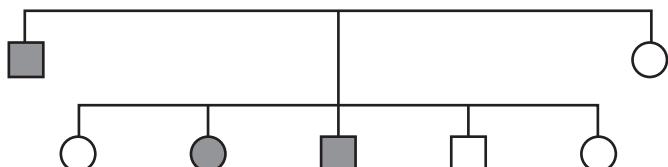
—•—• • •—•• •—•• •• | •—— •••• •— — | — —— — | —•• ——

Tracing Traits

Name _____

Use Student Text pages 320–23.

A. Complete the pedigree to answer the questions.

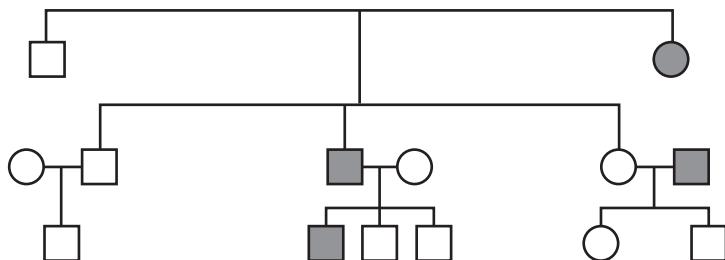


Pedigree for eyelash length

shaded = short eyelashes (recessive)

unshaded = long eyelashes (dominant)

1. What does a square represent on a pedigree? _____
2. What does a circle represent? _____
3. What do the horizontal lines signify? _____
4. What do the vertical lines connect? _____
5. How many children are in this family? _____
6. Does the father have long eyelashes or short eyelashes? _____
7. How many children have long eyelashes? _____



Pedigree for hairline

shaded = straight hairline (recessive)

unshaded = widow's peak (dominant)

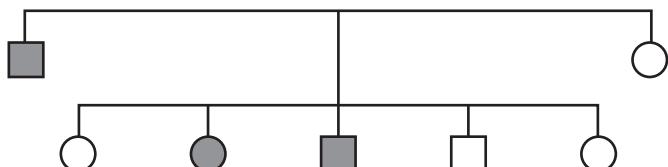
8. How many generations are shown on this pedigree? _____
9. Does the mother have a straight hairline or a widow's peak? _____
10. How many grandchildren (3rd generation) have a widow's peak? _____
11. How many grandchildren (3rd generation) have a straight hairline? _____

B. Brain stretcher: Look at the first pedigree for eyelashes. Do you think the mother has two dominant genes for long eyelashes or one dominant gene and one recessive gene? Why?
Hint: Make a Punnett square to help you decide.

Tracing Traits Key

Use Student Text pages 320–23.

A. Complete the pedigree to answer the questions.



Pedigree for eyelash length

shaded = short eyelashes (recessive)

unshaded = long eyelashes (dominant)

1. What does a square represent on a pedigree? *a male*

2. What does a circle represent? *a female*

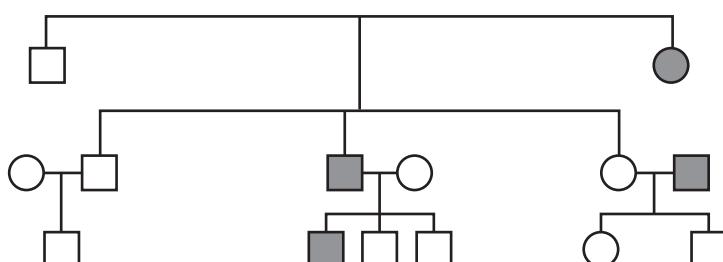
3. What do the horizontal lines signify? *marriage*

4. What do the vertical lines connect? *parents to their children*

5. How many children are in this family? *five*

6. Does the father have long eyelashes or short eyelashes? *short*

7. How many children have long eyelashes? *three*



Pedigree for hairline

shaded = straight hairline (recessive)

unshaded = widow's peak (dominant)

8. How many generations are shown on this pedigree? *three*

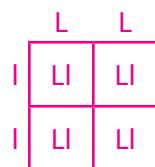
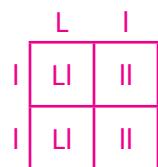
9. Does the mother have a straight hairline or a widow's peak? *straight hairline*

10. How many grandchildren (3rd generation) have a widow's peak? *five*

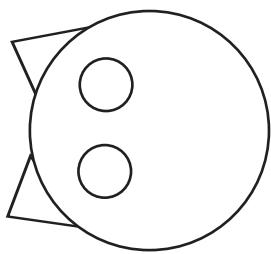
11. How many grandchildren (3rd generation) have a straight hairline? *one*

B. Brain stretcher: Look at the first pedigree for eyelashes. Do you think the mother has two dominant genes for long eyelashes or one dominant gene and one recessive gene? Why?
Hint: Make a Punnett square to help you decide.

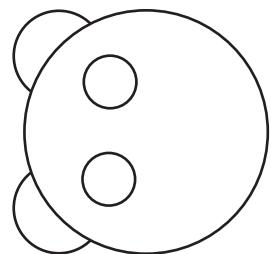
The mother has one dominant gene and one recessive gene because three of the five children have long eyelashes (dominant) and the other two have short eyelashes (recessive). If the mother had two dominant genes for long eyelashes, then all the children would have long eyelashes.



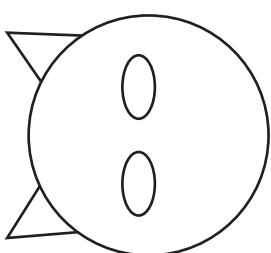
Parental Genotype Cards

**Genotype**

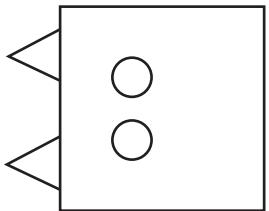
Face Color: Bb
Face Shape: ff
Eye Shape: RR
Ear Shape: Ee

**Genotype**

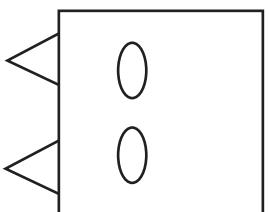
Face Color: Bb
Face Shape: ff
Eye Shape: Rr
Ear Shape: ee

**Genotype**

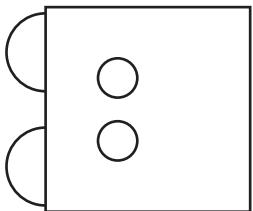
Face Color: Bb
Face Shape: ff
Eye Shape: rr
Ear Shape: Ee

**Genotype**

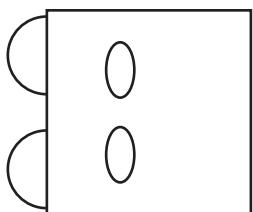
Face Color: Bb
Face Shape: FF
Eye Shape: Rr
Ear Shape: Ee

**Genotype**

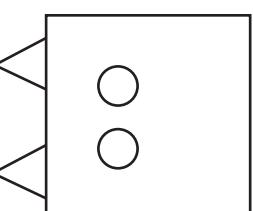
Face Color: BB
Face Shape: Ff
Eye Shape: rr
Ear Shape: EE

**Genotype**

Face Color: BB
Face Shape: Ff
Eye Shape: Rr
Ear Shape: ee

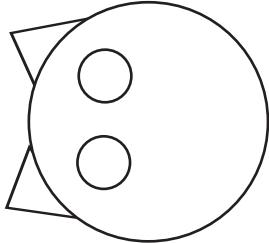
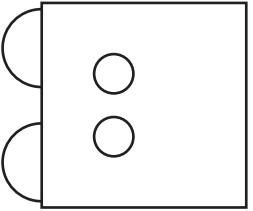
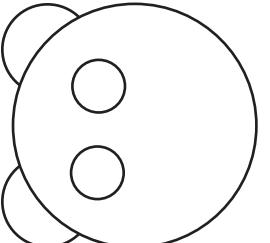
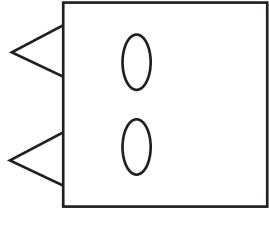
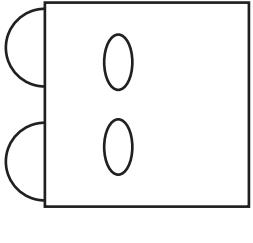
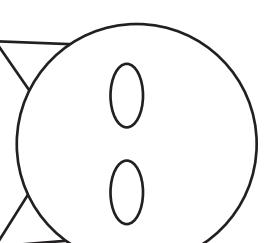
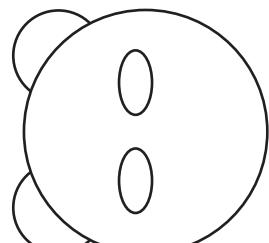
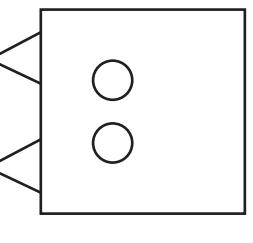
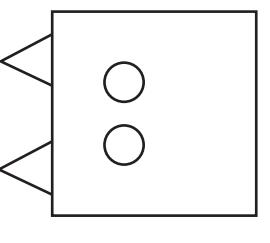
**Genotype**

Face Color: BB
Face Shape: Ff
Eye Shape: rr
Ear Shape: ee

**Genotype**

Face Color: BB
Face Shape: FF
Eye Shape: RR
Ear Shape: Ee

Parental Genotype Cards

 <p>Genotype Face Color: bb Face Shape: ff Eye Shape: rr Ear Shape: ee</p>	 <p>Genotype Face Color: bb Face Shape: ff Eye Shape: Rr Ear Shape: EE</p>	 <p>Genotype Face Color: bb Face Shape: FF Eye Shape: RR Ear Shape: ee</p>
 <p>Genotype Face Color: bb Face Shape: Ff Eye Shape: rr Ear Shape: Ee</p>	 <p>Genotype Face Color: bb Face Shape: FF Eye Shape: rr Ear Shape: ee</p>	 <p>Genotype Face Color: bb Face Shape: ff Eye Shape: rr Ear Shape: ee</p>
 <p>Genotype Face Color: bb Face Shape: FF Eye Shape: RR Ear Shape: Ee</p>	 <p>Genotype Face Color: bb Face Shape: ff Eye Shape: rr Ear Shape: EE</p>	 <p>Genotype Face Color: bb Face Shape: ff Eye Shape: Rr Ear Shape: Ee</p>

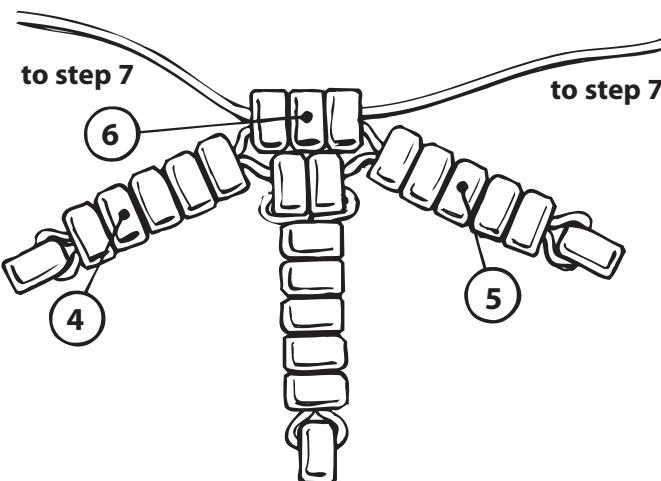
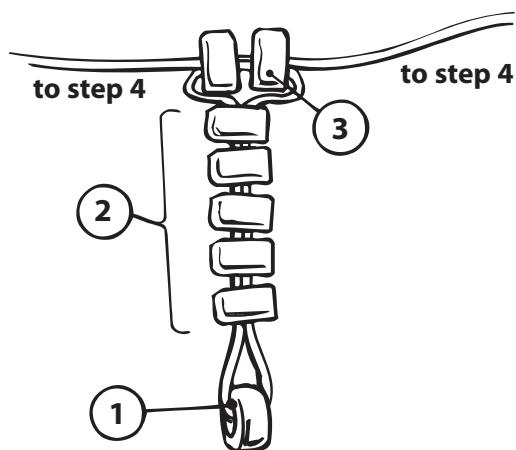
Bead Neuron

Name _____

Materials:

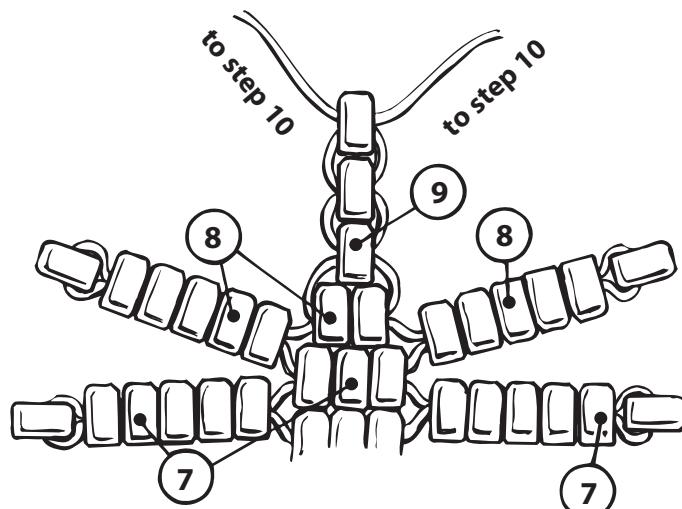
65 beads: Make each part a different color—1 bead for synaptic terminal (color #1); 12 beads for axon (color #2); 10 beads for cell body (color #3); 42 beads for dendrites (color #4)
120 cm plastic lace or flexible wire

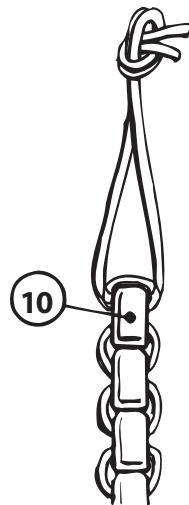
1. Thread one dendrite bead on the lace until the bead is exactly in the middle. Make sure that the ends of the lace are even.
2. Thread both ends of the lace through five more dendrite beads. Pull beads together snugly. Keep the ends of the lace even.
3. On one end of the lace, thread two cell body beads. Take the other end of the lace and thread it through the same two beads in the opposite direction. Pull beads together snugly.



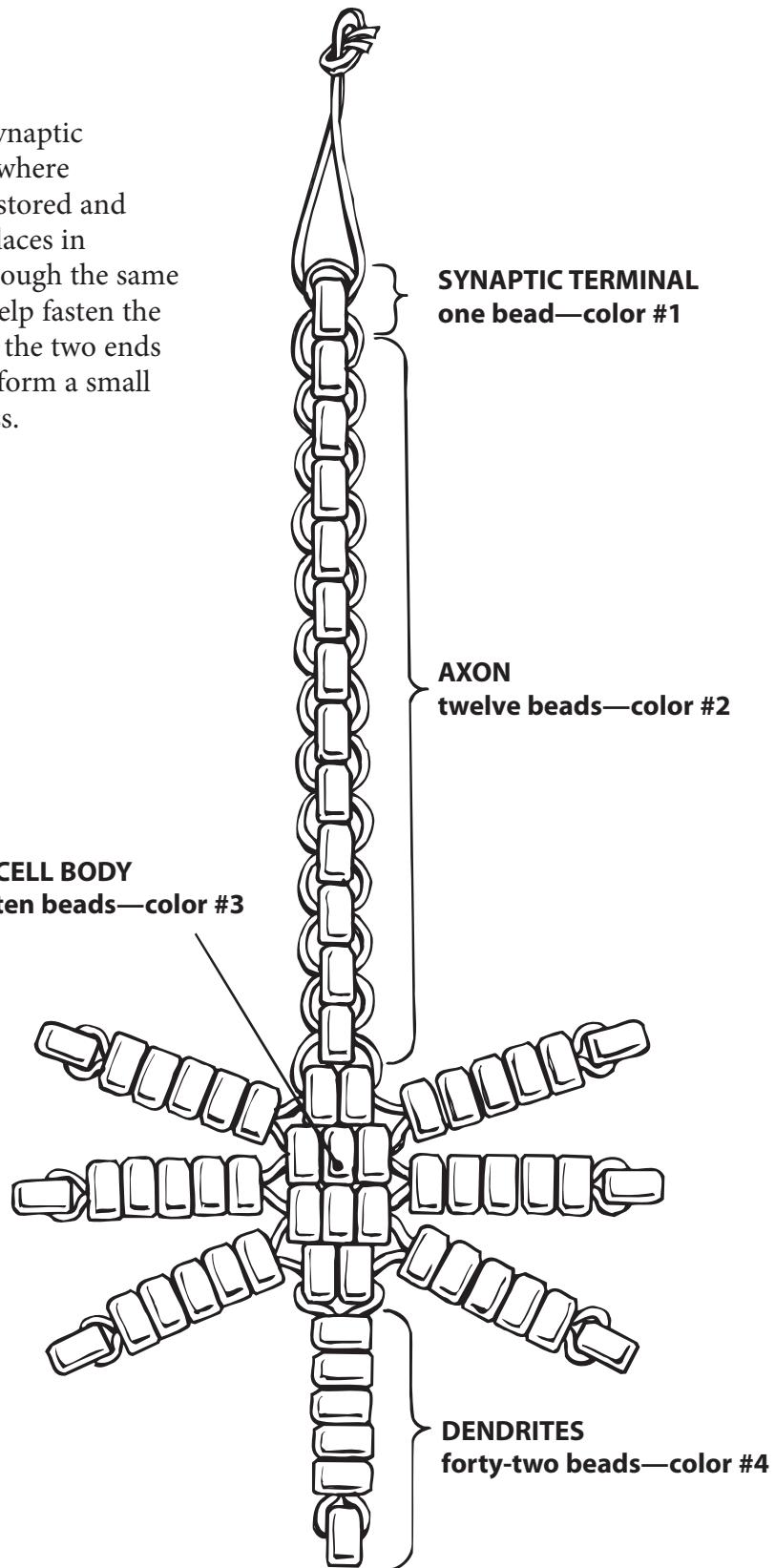
4. Thread six dendrite beads onto one end of the lace. Using the same end, skip the last bead placed on the string and thread the lace back through the other five beads. Push the dendrite beads up close to the cell body beads.
5. Repeat step 4 with the other end of the lace. Your neuron should now have three dendrites.
6. On one end of the lace, thread three cell body beads. Take the other end of the lace and thread it through the same three beads in the opposite direction. Pull beads together snugly.

7. Repeat step 4 for each end of the lace. You should now have five dendrites. Repeat step 6.
8. Repeat step 4 for each end of the lace. The neuron now has seven dendrites. Repeat step 6, but use only two cell body beads.
9. Thread one axon bead onto one end of the lace. Take the other end of the lace and thread it through the axon bead in the opposite direction. Pull the axon bead close to the cell body beads. Repeat this step for each of the remaining eleven axon beads.



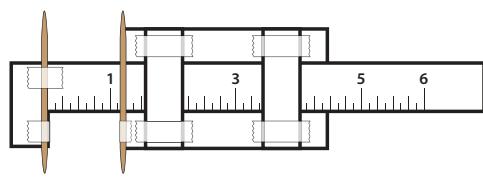
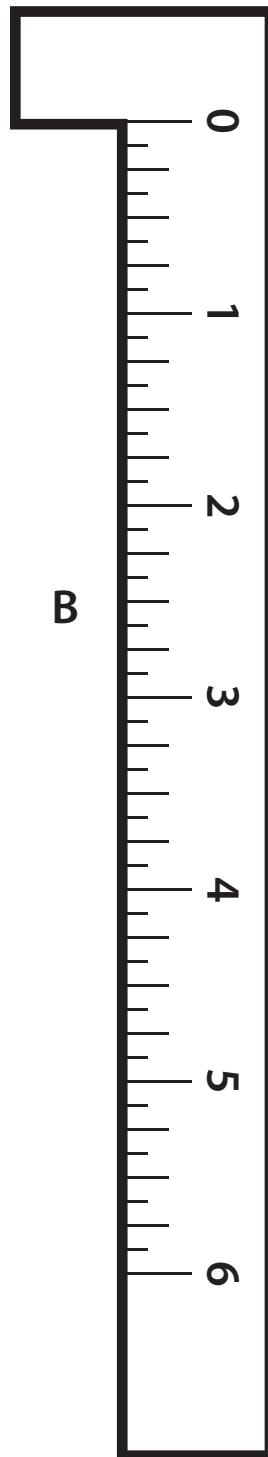
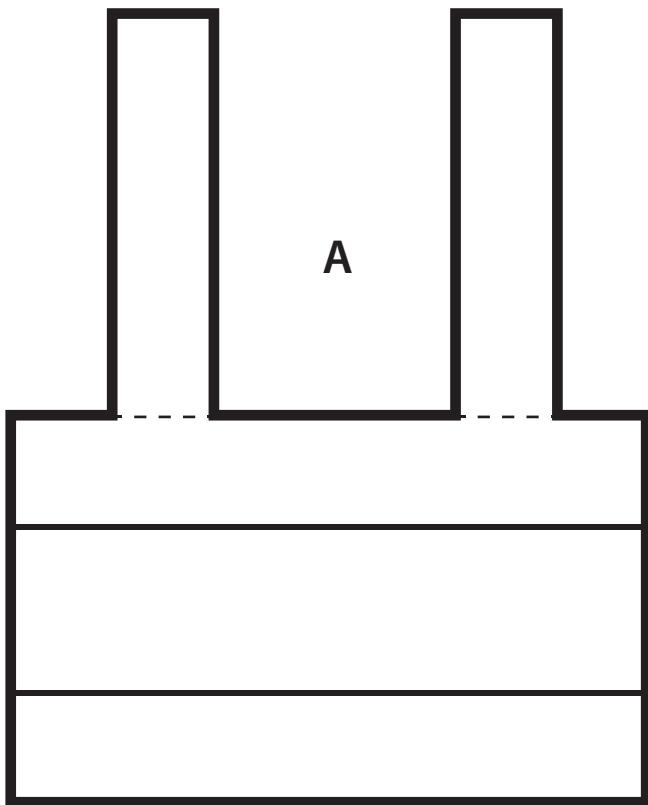


10. Repeat step 9 for the synaptic terminal bead. This is where neurotransmitters are stored and released. Thread both laces in opposite directions through the same bead again. This will help fasten the end of the neuron. Tie the two ends of the lace together to form a small loop. Cut off any excess.



Touch Tester

1. Cut out parts A and B.
2. Fold down tabs on part A. Tape both ends of each tab within the area marked with lines.
3. Center a toothpick along the edge of part A. Tape in place.
4. Align a toothpick with the 0 mark on part B. Tape in place.
5. Insert part B through both tabs on part A so both toothpicks are next to each other. Adjust the tabs so part B slides easily.
6. Adjust the position of the toothpicks as needed so they both extend the same distance below the Touch Tester.



Effects of Drug Abuse

Name _____

Category	Common drugs	Effects of drug	Possible results of abuse
Stimulants	Cocaine Crack Methamphetamine Caffeine Nicotine	Speeds up the central nervous system Interferes with the sending of nerve messages Increases alertness and energy	Shortness of breath, nausea, and seizures Decreased learning and memory Increased risk of heart attack, high blood pressure, internal bleeding, and nervous system disorders Death
Depressants	Heroin Morphine Alcohol Codeine	Slows down (depresses) the central nervous system May bring a pleasurable feeling Blocks pain message	Shortness of breath, sleepiness, and loss of appetite Increased anxiety Increased blood pressure Decreased memory and physical coordination Decreased decision making and judgment abilities Deterioration of brain, liver, heart, or other organs Death
Hallucinogens	LSD Marijuana PCP Mescaline Psilocybin	Changes the way neurons in the brain send and receive information, resulting in hallucinations	Increased blood pressure Decreased coordination and alertness Decreased memory, concentration, learning, and problem-solving abilities Increased emotions, such as fear and anger Risk of flashback reactions long after use has ended Affects the brain stem and involuntary actions such as sneezing, breathing, and coughing Death
Steroids	Prescription medications Can be found in some dietary supplements, and some herbal remedies that claim to be "all natural"; muscle builders	Affects the hypothalamus and other nerve cells Alters the function of organs and the genetic material of individual cells Disrupts hormones in the endocrine system	Headaches, nausea, seizures, and central nervous system disorders Increased anger and aggression Reduced appetite and growth Decreased learning and memory Weakened immune system Increased risk of heart attack, high blood pressure, tumors, cancer, and liver problems Death
Inhalants	Ordinary products that are inhaled, contrary to their intended purpose	Prevents oxygen from reaching the brain Can cause abnormalities in the brain and nerves Can deteriorate the myelin sheaths on some nerves Inhaled drugs reach the brain faster and can cause greater damage than oral or injected drugs	Seizures Blurred vision Uncontrolled shaking Decreased memory, concentration, learning, and problem-solving abilities Increased risk of blindness, deafness, or liver damage Death

Keeping God's Temple Clean

Name _____

A. Answer the following questions.

Which type of drug changes the way the brain receives information from the senses? _____

Which type of drug slows down the central nervous system? _____

Which type of drug affects the hypothalamus and the endocrine system? _____

Which type of drug speeds up the central nervous system? _____

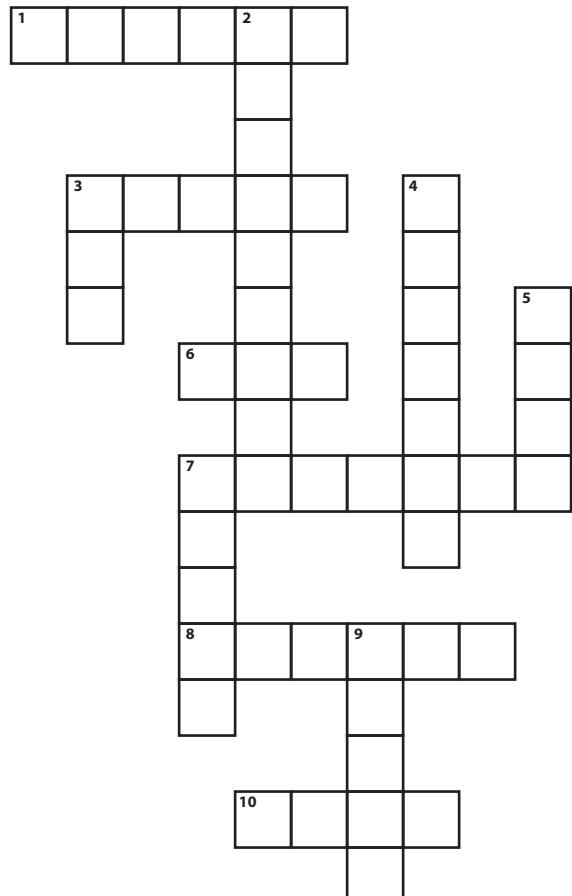
Which type of drug prevents oxygen from reaching the brain? _____

B. Use your Bible and the word bank to complete the puzzle.

body	destroy	obey	slavery
Christ	glory	power	sin
death	God	sacrifice	temple

Across

1. A Christian's desire should be for ____ to be magnified and exalted in his body (Phil. 1:20).
3. Everything a Christian does should be done to the ____ of God (1 Cor. 10:31).
6. A person commits ____ when he does not do what he knows is right (James 4:17).
7. If someone destroys his body, God will ____ him (1 Cor. 3:17).
8. The body of a Christian is the ____ of God (1 Cor. 3:16).
10. People are slaves of the person or thing that they ____ (Rom. 6:16).



Down

2. A Christian should present his body as a living ____ to God (Rom. 12:1).
3. A Christian is not his own. He belongs to ____ (1 Cor. 6:19).
4. Like false prophets, the temptation to use drugs may promise liberty and freedom; but actually, it results in ____ (2 Pet. 2:19).
5. A Christian should honor and glorify God with his ____ (1 Cor. 6:20).
7. The way that seems right to a person leads to ____ (Prov. 14:12).
9. A Christian should not be under the ____ of anyone or anything other than God (1 Cor. 6:12b).

Keeping God's Temple Clean Key

A. Answer the following questions.

Which type of drug changes the way the brain receives information from the senses? _____

Which type of drug slows down the central nervous system? _____

Which type of drug affects the hypothalamus and the endocrine system? _____

Which type of drug speeds up the central nervous system? _____

Which type of drug prevents oxygen from reaching the brain? _____

B. Use your Bible and the word bank to complete the puzzle.

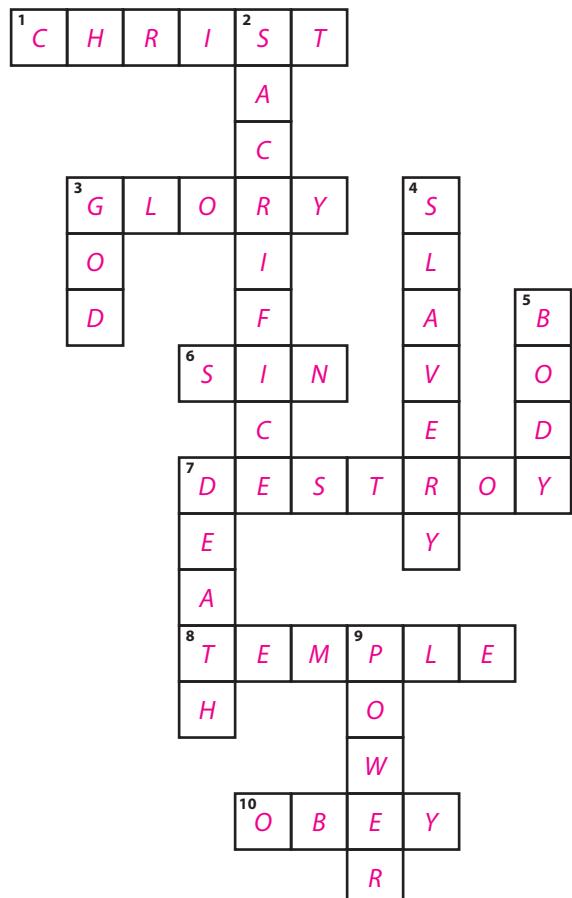
body	destroy	obey	slavery
Christ	glory	power	sin
death	God	sacrifice	temple

Across

1. A Christian's desire should be for ____ to be magnified and exalted in his body (Phil. 1:20).
3. Everything a Christian does should be done to the ____ of God (1 Cor. 10:31).
6. A person commits ____ when he does not do what he knows is right (James 4:17).
7. If someone destroys his body, God will ____ him (1 Cor. 3:17).
8. The body of a Christian is the ____ of God (1 Cor. 3:16).
10. People are slaves of the person or thing that they ____ (Rom. 6:16).

Down

2. A Christian should present his body as a living ____ to God (Rom. 12:1).
3. A Christian is not his own. He belongs to ____ (1 Cor. 6:19).
4. Like false prophets, the temptation to use drugs may promise liberty and freedom; but actually, it results in ____ (2 Pet. 2:19).
5. A Christian should honor and glorify God with his ____ (1 Cor. 6:20).
7. The way that seems right to a person leads to ____ (Prov. 14:12).
9. A Christian should not be under the ____ of anyone or anything other than God (1 Cor. 6:12b).



Blue Identity Cards

Make 2 copies of this page on blue paper.

WHITE BLOOD CELL 1	WHITE BLOOD CELL 5	WHITE BLOOD CELL 20	TONSIL 45
WHITE BLOOD CELL 10	WHITE BLOOD CELL 15		
		LYMPH NODE 40	

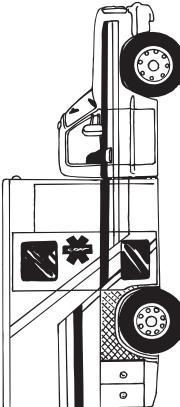
Blue Identity Cards

Make 1 copy of this page on blue paper.

WHITE BLOOD CELL 1	WHITE BLOOD CELL 5	BRAIN 25	LEFT LUNG 25	KIDNEY 30	RIGHT LUNG 25	STOMACH 35
--------------------------	--------------------------	-------------	-----------------	--------------	------------------	---------------

Blue Identity Cards

Make 1 copy of this page on blue paper.

BONE MARROW 55	LIVER 50	SPLEEN 60
AMBULANCE 	APPENDIX 50	THYMUS 55

Red Identity Cards

Make 2 copies of this page on red paper.

BACTERIA 1	VIRUS 5	BACTERIA 20	BACTERIA 45
PROTOZOAN 15	FUNG 10	BACTERIA 40	BACTERIA 40
BACTERIA 1	BACTERIA 20	BACTERIA 45	BACTERIA 45

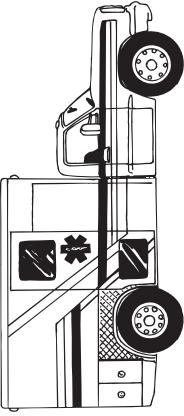
Red Identity Cards

Make 1 copy of this page on red paper.

BACTERIA 1	VIRUS 5	BACTERIA 25	BACTERIA 25	BACTERIA 25	BACTERIA 30	BACTERIA 35
---------------	------------	----------------	----------------	----------------	----------------	----------------

Red Identity Cards

Make 1 copy of this page on red paper.

VIRUS 50	BACTERIA 55	VIRUS 60
AMBULANCE 	VIRUS 50	BACTERIA 55