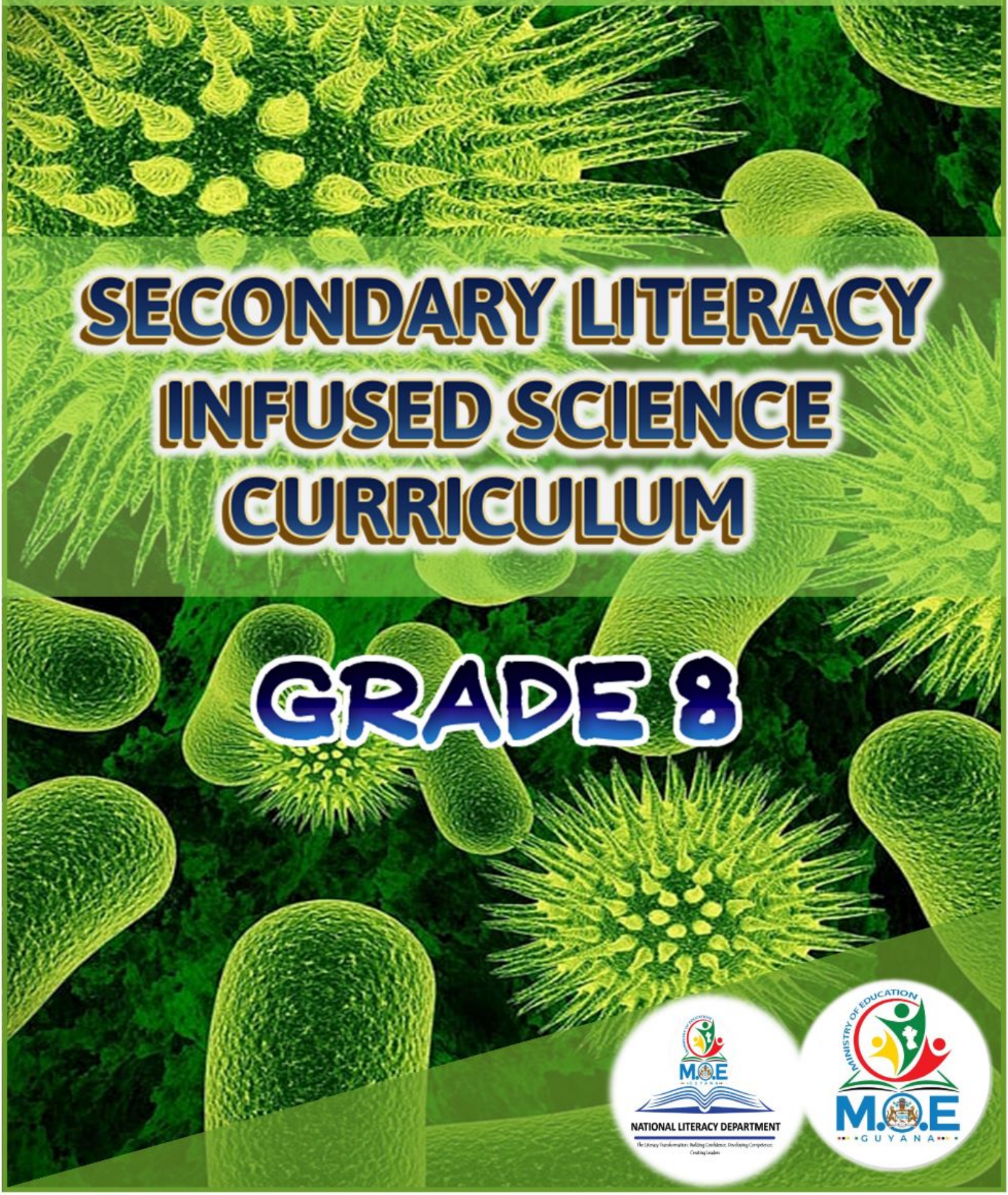
ACTIVITY GUIDE



SECONDARY LITERACY INFUSED SCIENCE CURRICULUM

GRADE 8

NATIONAL LITERACY DEPARTMENT

MINISTRY OF EDUCATION

M.O.E

GUYANA

Note to the Teacher

The Literacy Infused Curriculum-Activity Guide, is a document crafted by the Ministry of Education- National Literacy Department in collaboration with the Peace Corp Guyana. This document provides guidance for Science teachers on activities and how the literacy skills can be developed using subject specific content and concept related activities.

The use of this guide allows teachers to present lessons that are student centred and addresses immediate literacy development needs. It is advised that this activity guide be used as a support to Consolidated Curriculum. Woven into the activities are the essential literacy skills that are needed by learners to become functionally literate.

This guide is in-keeping with the Ministry of Education's Objective to ensure that every possible opportunity is explored and made available to learners, so that they can achieve expected educational outcomes. The Infused Curriculum activities, provides opportunity for Reading, Vocabulary development, Critical Thinking and development of Writing Skills. Learners will be able to understand concepts and content better while completing activities geared to their level.

Content

Unit 1: Life…….…….

Unit 2: Simple Machine..……

Unit 3: Acids and Bases……..

Unit 4: Detecting the Environment……

Unit 5: Soil, The Basis of Agriculture..…….

Unit 6: Energy..……...

Glossary……

Grade 8 Science

Pre-Unit Activity to address spelling/comprehension of words

(**You could choose to continue to use the pre-unit activity for each grade**)

(Have students complete this activity before each unit using textbooks or handouts being used for the lessons – keep a journal of the work for future review). Do the individual or group activity as below. Possibly switch it up with each unit or do both.

Individual Activity

1. Read the text and think about the overall meaning. Ask yourself the following questions:
   a. What does the teacher want me to understand?
   b. What are the main points of this topic?
      ** Have a group discussion with the students to see how they answer these questions to determine if they understand the concepts behind the work being presented to them**

2. Identify the words that are unfamiliar to you. Write down at least three of those words and write the definition of these words. Practise writing these words using the following format:

COPY	TRACE	RECALL
Look at the word and copy it down on the paper. Example: Science	Spell out the word with one letter missing each time – use a piece of paper to cover the previous word. Fill in the missing letter. Example: Science Scienc_ Scien_ _ Scie_ _ _ Sci_ _ _ _ Sc _ _ _ _ _ S _ _ _ _ _ _ _ _ _ _ _ _ _	Try to remember how to spell the word on its own. Read the word then fold over the copy and trace columns and try to write the word from memory.

Keep a word journal with all of these words, so that you can review the words when you need to and at the end of the school year you will get to see how many new words you learned!

Additional activity - Compare your words with your classmates words and see if there are other words you can learn!

** Group Activity**

1. Have the teacher ask the class which words they do not know/understand.
2. The teacher writes the words down on the board.
3. The students break up into groups and the teacher divides the unknown words evenly amongst the groups. The groups look up the definitions to present the words to the class.
4. Presentation consists of:
    1. Word with definition: The student will present and the teacher will write what the student says on the board. The rest of the students will write down the word and the definition of the word to add to their word list. They will then complete the trace, copy, recall activity later.
    2. Example, including visual aid if needed/possible. If using a text book – have students share where in the textbook or handouts they can find an example of the word.
    3. How the student(s) think about and share how they may use this word in their work.

    Example:

    1. Beaker - a lipped cylindrical glass container for laboratory use.
    2. 
    3. I will use a beaker in class to measure liquids.
5. Have students keep a word journal: They will use the same notebook each time to continue a list of words they learned in each class. They can then go back and review the words they learned at any time.

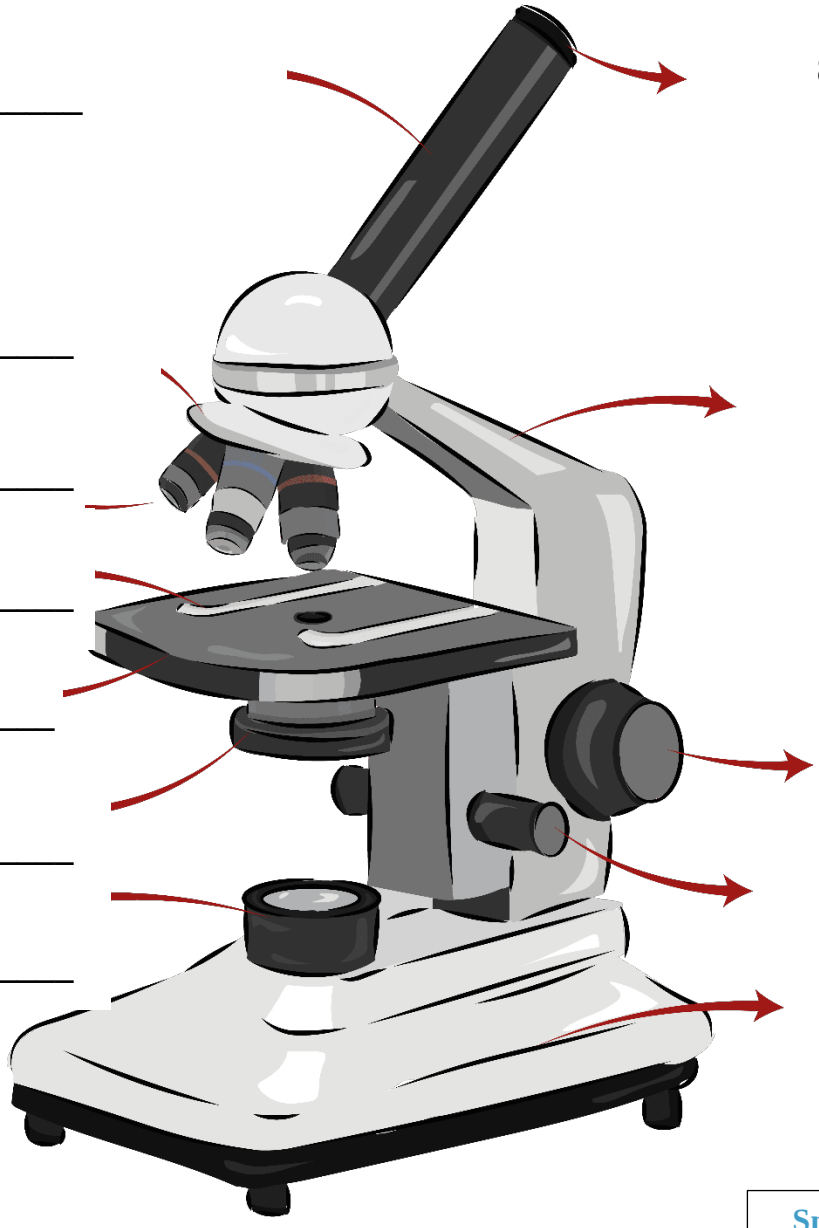
In addition to using the Pre-Unit activity in Grade 8 like in Grade 7, Frayer cards will continue to be a useful tool.

1. **LIFE**
   - **The Microscope**
     Have students label the microscope then utilize the “copy, trace, recall” activity to reinforce the vocabulary.

Name _____ Date _____

Parts of a Microscope Worksheet

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____



8. _____
9. _____
10. _____
11. _____
12. _____

Parts of a Microscope Worksh

1. Eyepiece tube or Body tube

2. Nosepiece

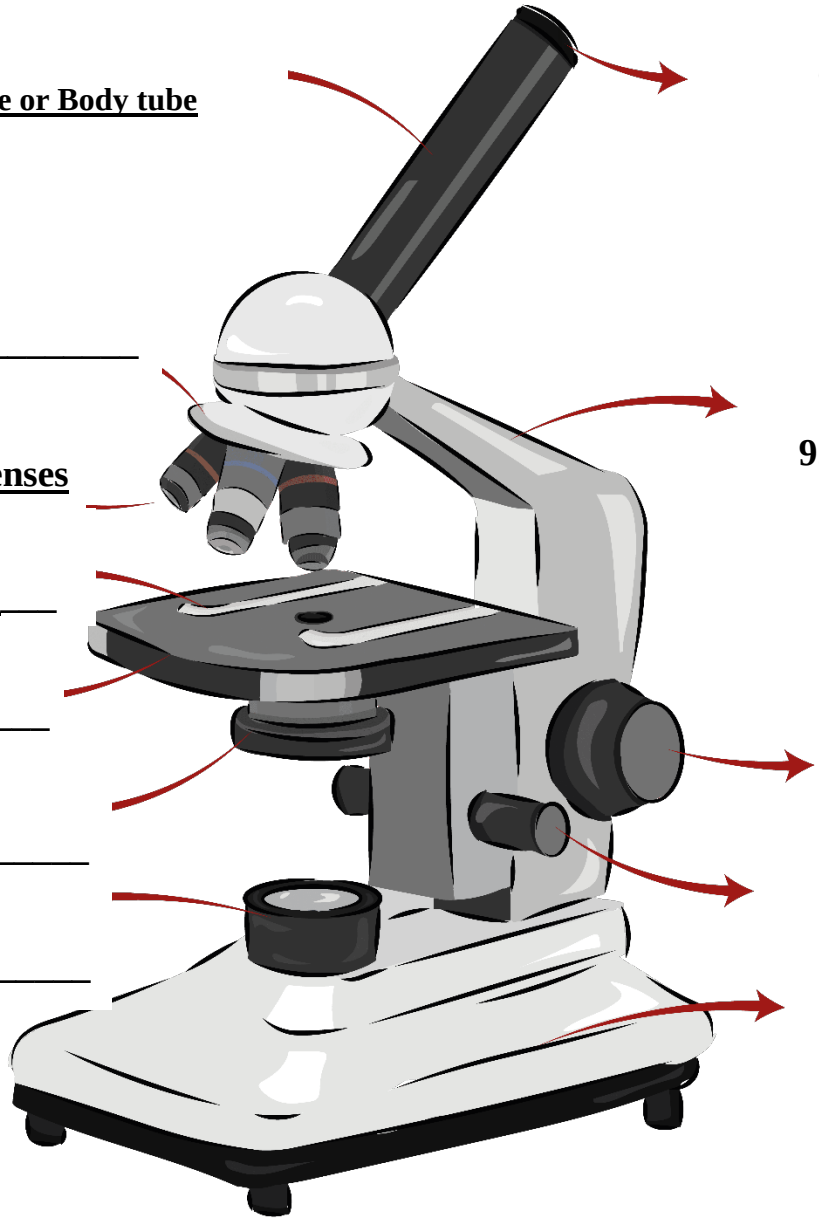
3. Objective lenses

4. Stage clips

5. Stage

6. Diaphragm

7. Illuminator



8. Eyepiece / Ocular Lens

9. Arm

10. Coarse focus

11. Fine focus

12. Base

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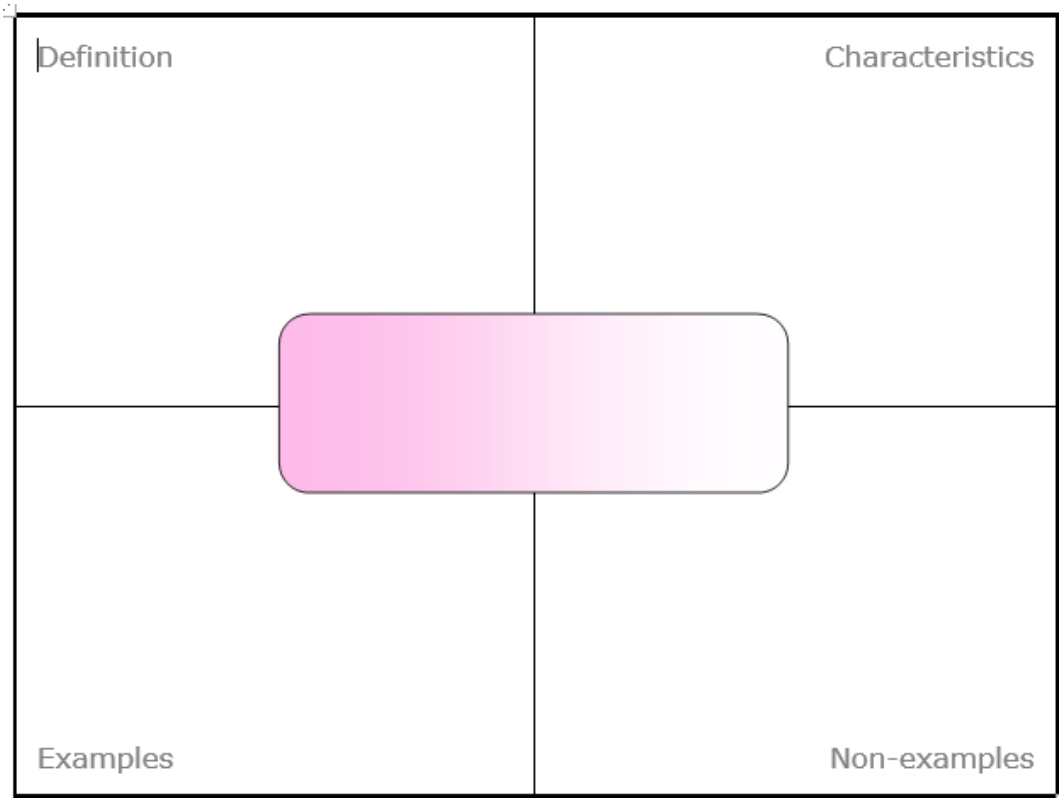
__Cells- The Building Blocks of Life

1. Create Frayer card comparing/contrasting animal and plant cells
2. Divide students into groups of 4 – have students take a section of the Frayer card and present on it to the other students.

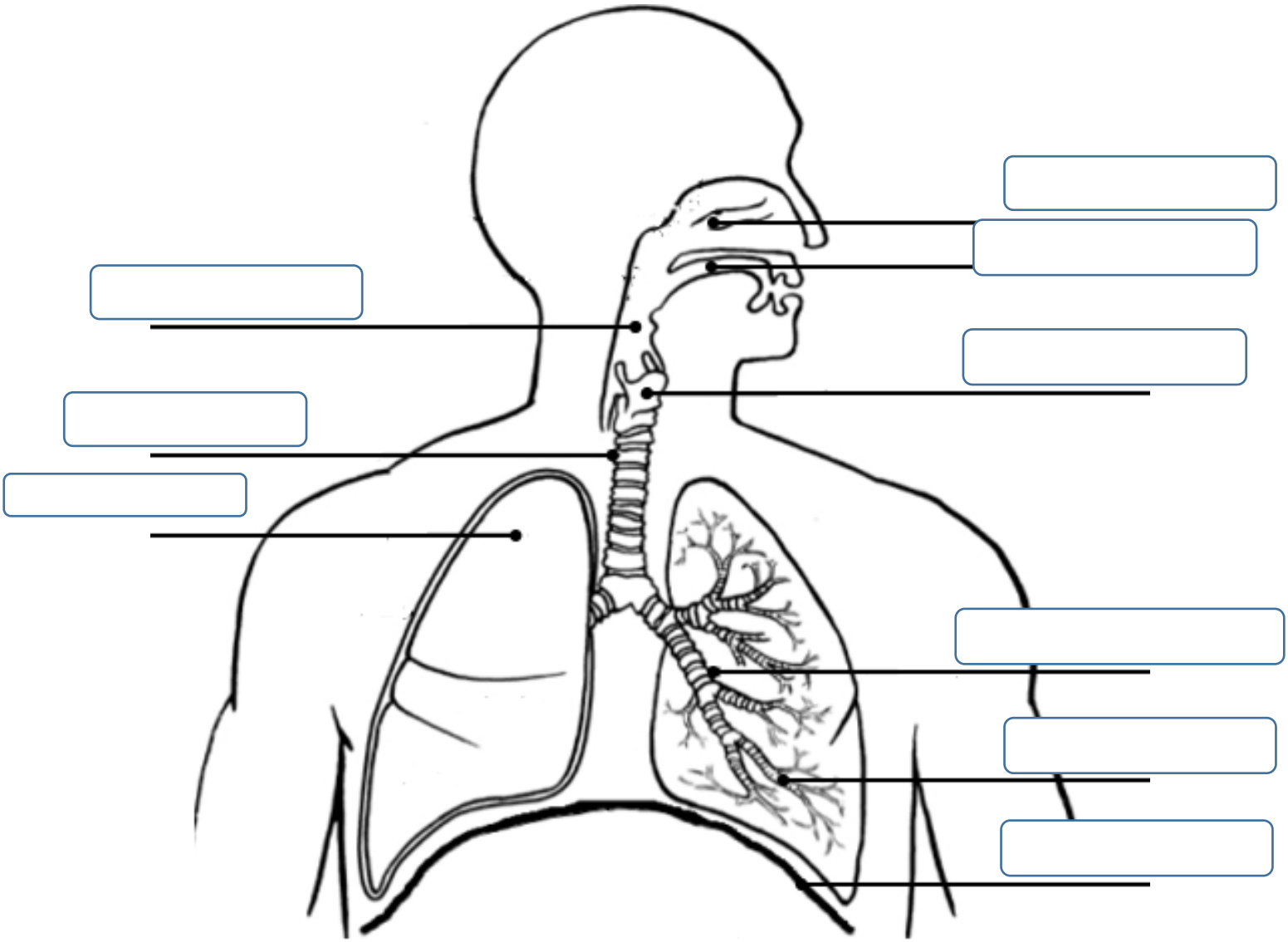


__**Storage Organs in Plants**

Have students create study cards, where one side of the card has the name of a plant storage organ and the other side has a drawing of the organ. Then create a worksheet with pictures of the plant storage organs and they have to fill in the name of the storage organ.

__**Respiration**

Provide students with a picture of the respiratory system and have them label the different structures.



Label the diagram above using the following: Bronchiole, Bronchus, Diaphragm, Larynx, Left lung, Nasal cavity, Oral Cavity, Pharynx, Trachea,

Created by: https://www.teacherspayteachers.com/Store/Joachim-Amoah

__Pollination

Have students complete the quiz below in plant reproduction.

Plant Reproduction QUIZ

Name: Date: Score:

MATCHING:

1. _____ The tiny granules that contain sperm (the male gametophyte) of seed plants
2. _____ The transfer of pollen from the anther to the stigma
3. _____ Underground stems, or tubers, can produce new plants after a dormant season
4. _____ When the sperm fuses with the egg inside an ovule
5. _____ Above-ground stems from which new plants can grow
6. _____ Each fertilized egg in the ovary turns into this _____
7. _____ The inactive state of a seed when conditions are unfavourable to growth
8. _____ Tiny plants that grow along the edges of a plant's leaves, and fall off and grow on their own
9. _____ The ovary of the plant turns into _____ after fertilization
10. _____ The sporophyte releases ____ into the air, where they float to a new area and land on moist soil, growing into a gametophyte

a. _____ Fruit

b. _____ Plantlets

c. _____ Runners

d. _____ Tubers

e. _____ Dormant

f. _____ Fertilization

g. _____ Pollination

h. _____ Pollen

i. _____ Seed

j. _____ Spores

__Human reproduction

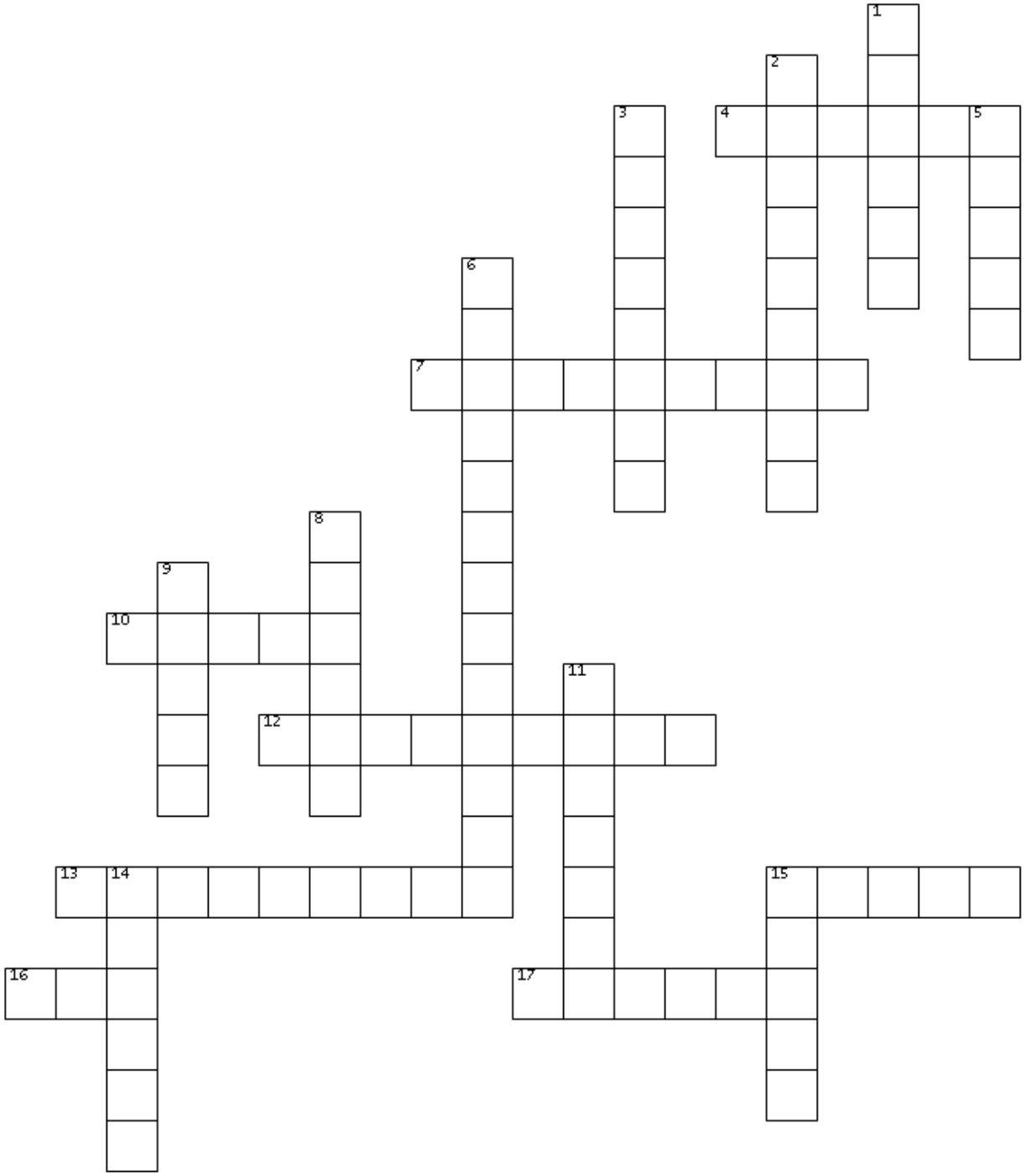
Crossword puzzle:

ACROSS

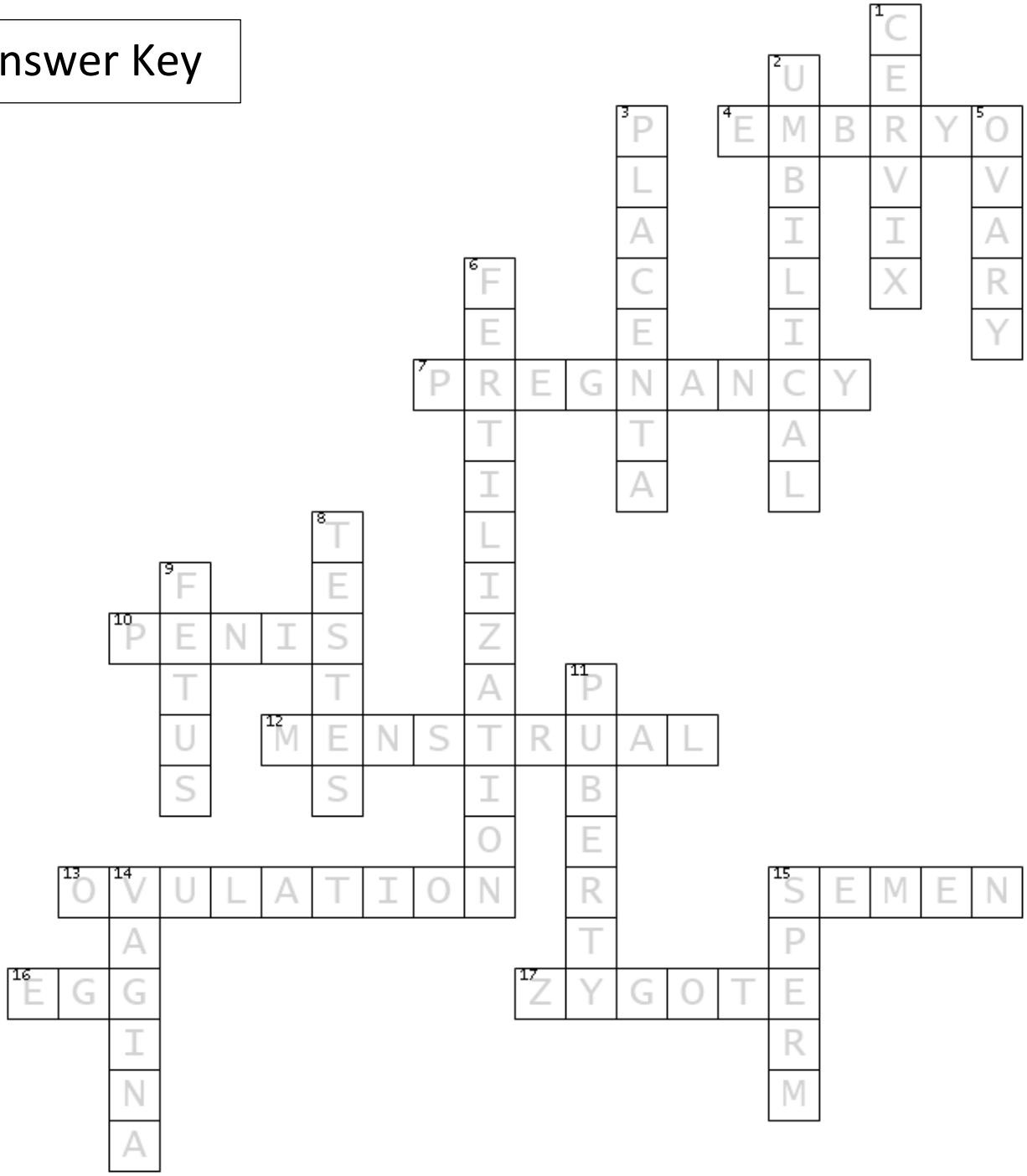
4. Term used to name a zygote— from the time it attaches to the uterus until the end of the eighth week of pregnancy
7. Period of development from fertilized egg to birth
10. Tube-like structure that delivers sperm to the female reproductive system
12. Cycle prepares the ovaries and uterus for new offspring
13. Process in which an egg is released from the ovary
15. Mixture of sperm and other fluids
16. Female reproductive cell
17. Fertilized egg

DOWN

1. Small structure between the uterus and the vagina
2. Cord / rope like structure that is formed from outer zygote cells and that attaches the developing offspring to the placenta
3. Organ formed from the outer cells of the zygote and cells from the uterus
5. Organ in females where oocytes are stored and reach maturity
6. Joining of an egg and a sperm
8. One of the two male reproductive organs that produces sperm
9. Term used to name a developing embryo—from the time between nine weeks and birth
11. Process in which the reproductive system matures; occurs during adolescence
14. Part of the female reproductive system that connects the uterus to the outside of the body
15. Male reproductive cells



Answer Key


1 C E
2 U
3 P L A C E
4 E M B R Y
5 O V A R Y
B I L I
V I X
6 F E
7 P R E G N A N C Y
T I L I Z A T I O N
A L
8 T E S T
9 F
10 P E N I S
T U S
11 P U B E R T Y
12 M E N S T R U A L
S
13 O
14 V U L A T I O N
A G I N A
16 E G G
15 S E M E N
P E R M
17 Z Y G O T E

2. SIMPLE MACHINES

__Forces and motion

Have students complete flashcards to reinforce writing and reading the concepts of forces and motion. Examples below.

Force- A push or pull on an object that may or may not cause motion, has a size and direction
Velocity- the speed of an object in a particular direction
net force- the combination of all forces acting on an object
newton - the SI unit of force
acceleration- the rate at which velocity changes over time, the rate at which velocity changes over time; an object accelerates if its speed, direction, or both change

Example of acceleration a boulder rolling down a hill faster

balanced forces - 2 or more forces exerted on an object that cancel each other out and don't cause a change in motion
unbalanced forces - 2 or more forces exerted on an object that can cause an object to change in motion in a certain direction
gravity- the force of attraction between all masses in the universe
friction - the force that opposes the motion of one surface as it moves across another surface

Decrease friction -adding lubricants
Increase friction - have rougher surfaces; i.e. sandpaper
kinetic friction- friction between moving surfaces
static friction -friction between non-moving surfaces
fluid friction - friction that occurs as an object moves through a fluid
sliding friction - friction that occurs when one solid surface slides over another

Newton's 1st Law - an object at rest will stay at rest; an object in motion will stay in motion; unless acted by an outside force
Newton's 2nd Law- Force is mass times acceleration; an objects acceleration depends on the mass of the object and the size and direction of the force acting upon it
Newton's 3rd Law -Every action force has an opposite, and equal reaction force
motion - an object's change in position relative to a reference point
speed - the rate at which an object moves

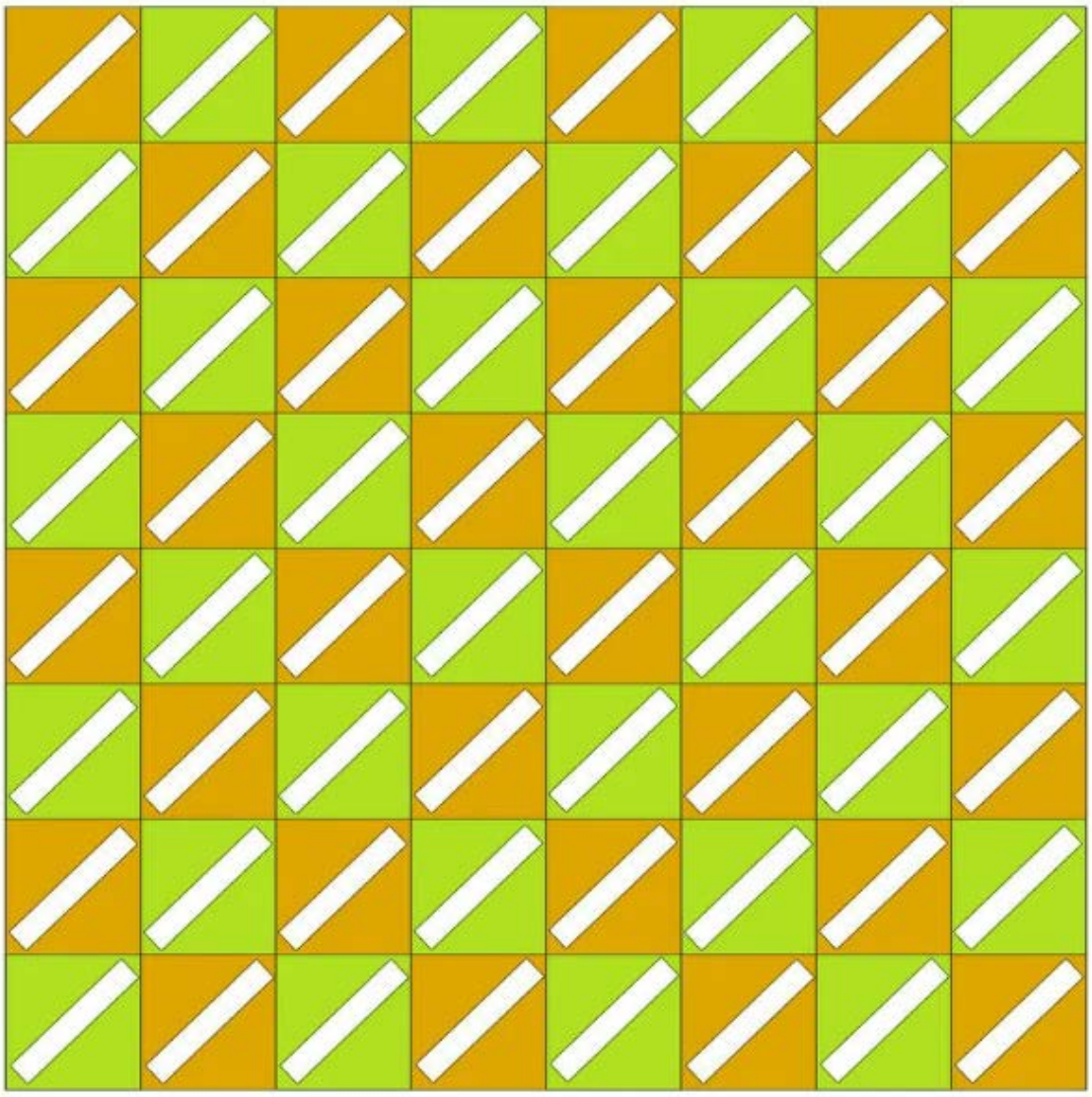
3. ACIDS AND BASES

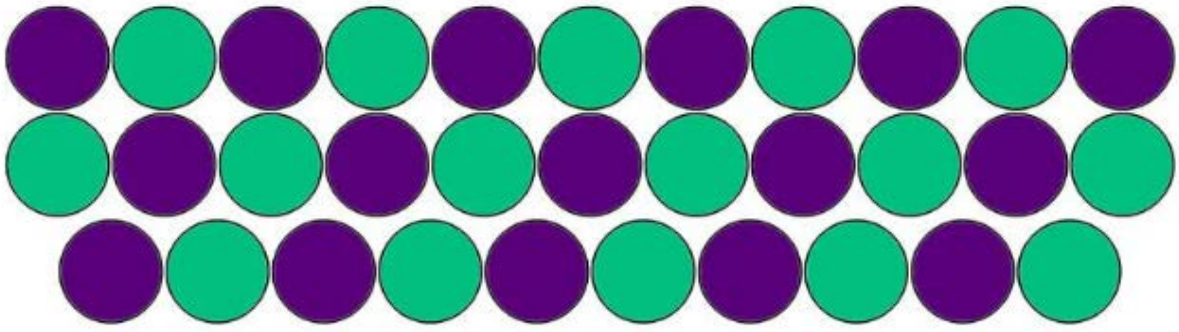
__Measuring acidity and alkalinity

Have the students put the vocabulary words on the checkerboard and then have them play checkers, but in order to move to the space they want to move to, they have to give the definition of the word in the space. (Checker board example below)

acid	produces hydrogen ions when dissolved in water
base	a compound that produces hydroxide ions when dissolved in water
OH-	symbol for hydroxide ion
H+	symbol for hydrogen ion
H3O+	symbol for hydronium ion
self-ionization	the reaction in which two water molecules react to give ions (H+ and OH-)
acidic solution	one where the H+ concentration is greater than the OH- concentration
basic solution	one where the H+ concentration is less than the OH- concentration
Bronsted-Lowry acid	a hydrogen ion donor
Bronsted-Lowry base	a hydrogen ion acceptor
amphoteric	a substance that can act as both an acid and a base (such as H2O)
dissociated	ionized: taken apart
concentrated	large number of acid or base moles in solution: high M
dilute	small number of acid or base moles in solution: low M
strong acid or base	one that dissociates (ionizes) completely in solution
weak acid or base	one that only dissociates (ionizes) a small amount in solution
amphoteric	substance that can act as both an acid and a base
indicator	a compound that changes color when in contact with an acid or a base
hydrogen ion	(H+) and atom of hydrogen that has lost its electron
hydroxide ion	(OH-) made of oxygen and hydrogen
potential Hydrogen scale	range of values from 0-14 that expresses the concentration of hydrogen ions in a solution
acid rain	is more acidic than normal rainwater
neutralization	reaction between an acid and a base
electrolytes	substances that are good conductors of electricity
litmus paper	can be used to determine if a solution is an acid or base
ascorbic acid	Vitamin C
hydrochloric acid	acid found in the stomach
sulfuric acid	car battery acid
acetic acid	acid found in vinegar
buffer	a substance that helps maintain the balance of hydrogen and hydroxide ions in a solution
titration	a common method used in the laboratory to determine the concentration of an acid or base
ionization	the process of dissociation
equivalence point	the point at which neutralization occurs
dilute solution	solution with only a little solute
concentrated solution	solution with a lot of solute

Vocabulary Checkers





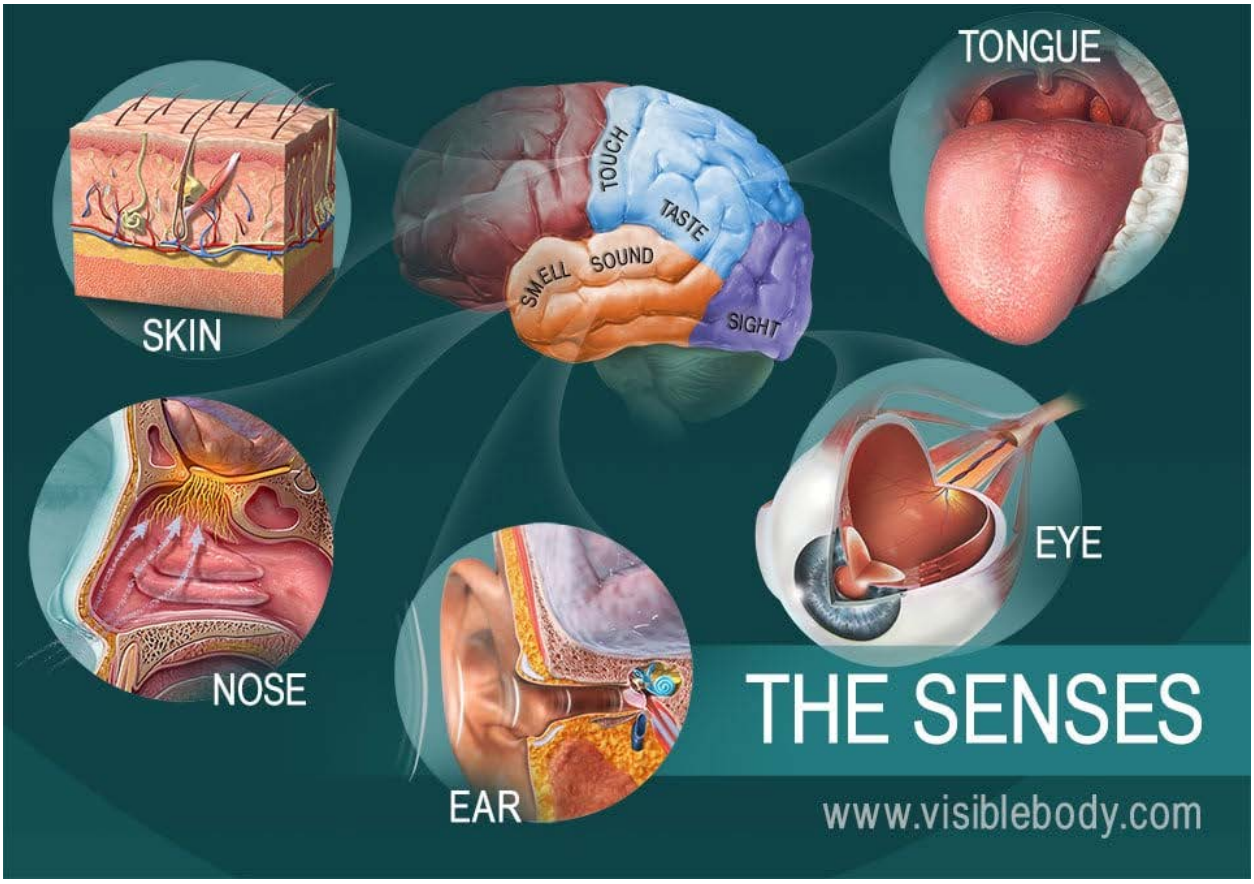
(http://schools.magoosh.com/schools-blog/9-classroom-vocabulary-games-to-use-with-your-students)

4. DETECTING THE ENVIRONMENT

__The eye, ear, nose, tongue, skin

Have students create a "Book of Senses" – For each sense they have to

1. Draw and label the organ
2. Find something in their environment that they detect using the senses and either adhere (glue, tape, staple) it to their books or draw it. For example, for the tongue- they can either draw a piece of fruit or tape a candy wrapper into their books. For skin, they could do touch, and write a paragraph on what the item they have chosen to feature in the book feels like.
3. For each item they chose for the individual sense, they should write a paragraph on how one other sense it used to detect that item. For example – if they chose a piece of fruit for tongue, they could then talk about what they see or smell from the fruit



5. SOIL: THE BASIS OF AGRICULTURE

The main crops of Guyana are: rice, sugar, coffee, cocoa, coconuts, copra, fruit, vegetables, and tobacco.

Have students pick two Guyanese crops and complete Frayer cards with the drop in the middle and the four sections around them be

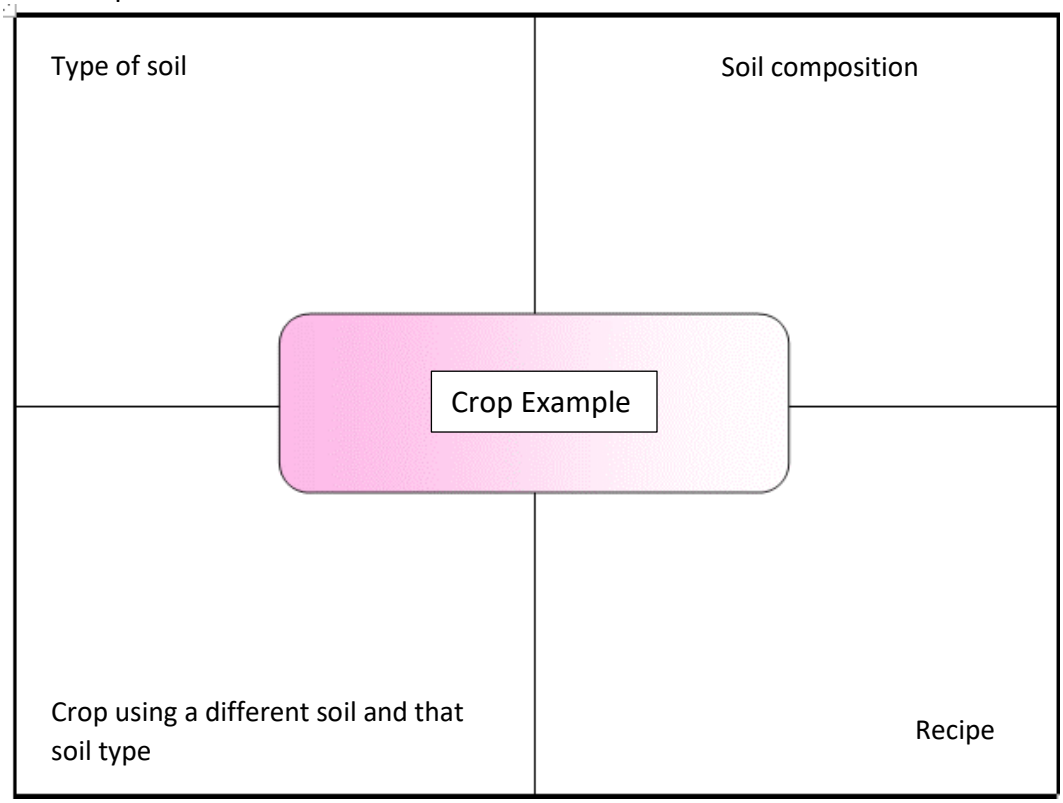
__Soil composition needed for that crop

__Which type of soil it would grow in

__A crop grown in a different type of soil and which soil that is

__The ingredients for a recipe using that crop. The recipe can be found in a book, online, from a family member or they can make it up.

Make copies of the card so each student can learn from all of the cards.

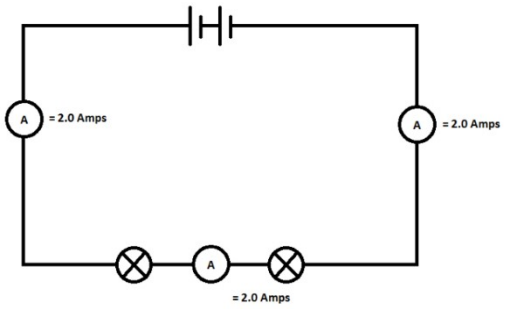


6. ENERGY

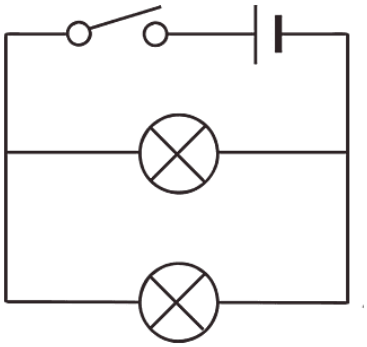
Have students complete the following worksheet:

Series and Parallel Circuits

A series circuit only has _____ pathway for _____ to flow. All the components are _____ in one _____.



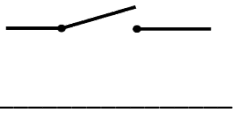
Series circuit



Parallel circuit

A parallel circuit has _____ pathways for current to _____. The _____ are in _____ in parallel _____.

Circuit Symbols



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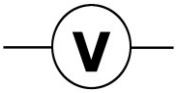

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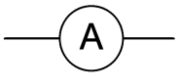

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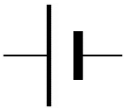

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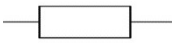

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_____

_____

With a battery (cell) the longer represents the _____ side and the shorter the _____ terminal. Each _____ represents the number of _____.

Questions to complete

1) Draw a circuit connected in series with a switch, voltmeter, two light globes.

2) Draw a circuit with three light globes in parallel that can be controlled individually with switches, one battery and a switch to turn off all lights at the same time.

3) Draw a circuit connected in series with two batteries, a switch, two light globes and an ammeter between the two light globes.

4) Draw a circuit connected in parallel with a switch to control all light globes, two light globes in series with a resistor before the second light globe.

Series circuits

Advantages	Disadvantages
- Simple to design and build	- If one light goes out they all go out - As more lights are added they become dimmer (due to resistance)

Parallel circuits

Advantages	Disadvantages
- If one light blows the others will still glow and current will continue to flow - Easy to remove parts without affecting the rest of the circuit - All light globes will have the same brightness	- Cannot increase voltage - Uses a lot of wire

(https://www.teacherspayteachers.com/FreeDownload/Circuits-Interactive-notebook-activity-8192259)