

Advanced Biology Summer Assignment

Sherman ISD 2021-2022

Welcome to Advanced Biology! This year you will have two summer assignments, both of which can be found detailed below. In addition, I have added my contact information/office hours should you find yourself in need of assistance. **Both assignments will be due WEEK 1 of Advanced Biology.**

Contact info for Mrs. Green:

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PreAP Biology Summer Work for 2020-2021 – Part 1

Task: You will design an experiment to test one of these claims. You are assigned a claim based on the first initial of your FIRST NAME.

First Initial of your FIRST Name	Assigned Claim
A	An apple a day keeps the doctor away.
B-C	Eating chocolate causes zits.
D-E	Swimming immediately after eating will give you cramps.
F-G	Eating carrots will improve eyesight.
H-J	Going outside with wet hair will make you catch a cold
K-L	Shaving makes hair grow back faster.
M	Drinking coffee will stunt a child's growth.
N-O	Not eating when you have a fever will make you get better faster.
P-R	Break a mirror and you will have seven years of bad luck.
S	Blowing out all the candles on your birthday cake in one breath will cause you to get your birthday wish.
T-V	The full moon makes people restless.
W-Z	Reading in dim light damages a person's eyes.

Assignment Requirements:

Must be a Google or Word doc. Due the 1st week of school. Spelling counts!

- 1) State the Problem
- 2) State your Hypothesis **in If, then format...**
- 3) State the Independent Variable and the Dependent Variable
- 4) Detailed Step-by-step Procedure in a numbered list with complete sentences (not a paragraph)
- 5) Data table **(With no data – just headings of what data would go into it)** (NOT A GRAPH)
- 6) Diagram that details the difference between the control/ experimental groups (See diagram below for example) Be sure to label the control group and the experimental group.

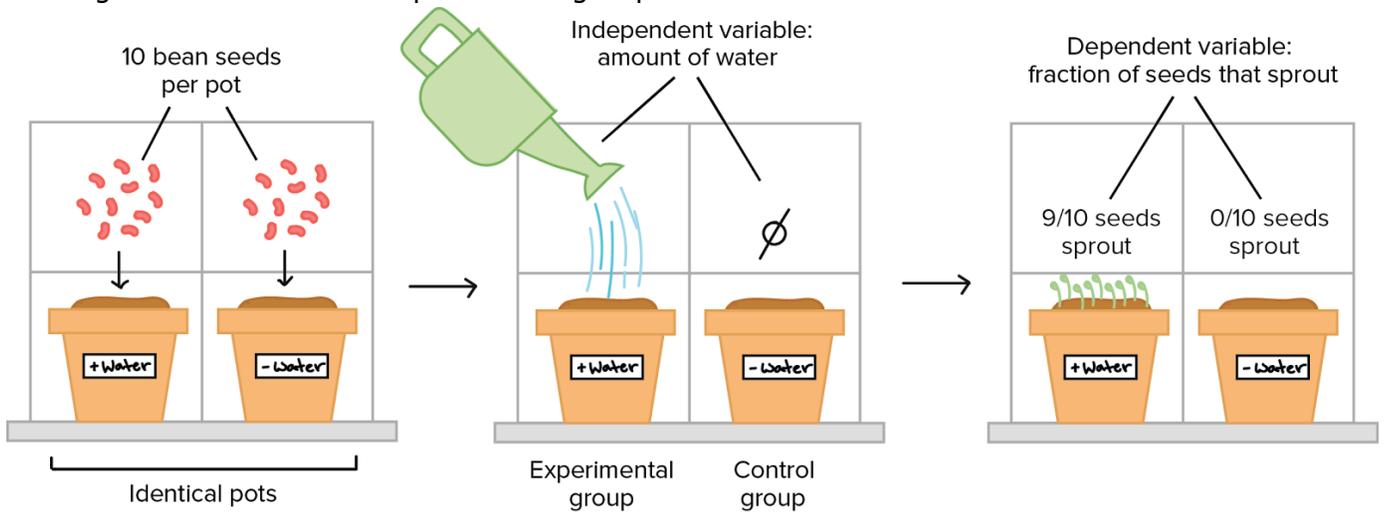
References

Video explaining Independent variable versus Dependent variable: <https://youtu.be/iaewZmc4TYQ>

Video explaining Experimental group versus Control group: <https://youtu.be/aLesk8fujH8>

Steps of the scientific method, hypotheses, and data tables: https://youtu.be/b_pMPtebR84

EX Diagram of control and experimental groups:



PreAP Biology Summer Work Part 1 Rubric

Problem/Question	6 Matches the assigned claim. Makes sense.			2 Made up own problem or question	0 Problem or question not stated
Hypothesis	11 Testable! Includes reference to both IV and DV. Specific prediction. In If, then format.	8 Specific prediction but doesn't include either the IV or DV. In If, then format.	5 Not in If, then format or no specific prediction given.	2 Not testable	0 No hypothesis
Independent and Dependent Variable	17 Correctly identifies both the Independent and Dependent Variables		8 Only correctly identifies one of the IV or DV		0 No IV and no DV identified
Procedure	26 Numbered list with complete sentences. Anyone can follow the directions. Materials listed specifically with amounts and brands (if applicable) Actually tests the hypothesis.	17 Numbered list with complete sentences. Directions are difficult to follow – missing steps or some steps unclear. Materials listed less specifically. Actually tests the hypothesis.	12 Not a list or not complete sentences. Directions cannot be followed. Materials might not be listed. Doesn't test the hypothesis.	2 Totally off topic	0 No procedure
Data Table	19 Headings match up with data collected in procedure. Makes sense with IV and DV	10 Lacking one of the necessary headings on the data table	5 Has headings but missing either the IV or the DV	2 Made graph instead	0 No data table
Diagram	13 Clear and has to do with procedure. Labeled.	6 Semi-difficult to understand or not completely labeled.		2 Cannot read it or doesn't make sense	0 No diagram
Overall:					
Spelling	(8 pts) -1 pt for each error (Up to -8)				

PreAP Biology Summer Work – Part 2

Language of Science

Learning the language of science is a lot like learning a new language. Scientists often use scientific words for common words that most of us already know. For example, a scientist will say “neo” instead of “new” or “pseudo” instead of “fake”. To learn science, you need to also learn this new language. Don’t worry, though. This list will help you. Just remember that most words can be broken up into a **PREFIX** (the beginning of the word) and a **SUFFIX** (the end of the word). Look at the example on the next page for help on how to use this list.

PREFIX	MEANING	PREFIX	MEANING	PREFIX	MEANING
a-	without, lacking	e-/ef-/ex-	out, out of, from	oculo-	eye
ab-	away from	echin-	spiny	odont-	tooth
adipo-	fat	ect-	outside	olf-	smell
alb-	white	en-	in	omni-	all
amphi-/amp-	of both kinds	encephal-	brain	opthal-	eye
andr-	male	epi-	on, above	oss-/ost-	bone
angio-	vessel (blood)	extra-	outside, beyond		
ante-	before			phag-	eat
anthropo-	humans	gastro-	stomach	photo-	light
anti-	against	gene-	origin, birth	plasm-	form
aqua-	water	geo-	earth	pneumo-	lungs
arbor-	tree	glottis-	mouth of windpipe	pre-	before
arthro-	jointed	gymno-	uncovered	prot-/proto-	first
aster-	star			pseudo-	fake, false
audi-	hear, sound	hepato-	liver	retro-	backward, back
auto-	self	hetero-	different	rota-	turn, wheel
		hiber-	winter	rupt-	break, burst
bi-	two, twice	homo-	same, alike		
bio-	life, living	hydro-	water	sub-	under, beneath
bronch-	windpipe (lungs)	hyper-	over, above	super-/sur-	above, upon
		hypo-	below, under, less		
card-	heart			tele-	at a distance
carn-	meat	inter-	between	therm-	temperature
cell-	storeroom	intra-	within, during, inside	trans-	across, beyond
cephalo-	head	ichthy-	fish	tri-	three
chlor-	green	immunis-	free	trop-	turning
chrom-	color				
chron-	time	leuc-	white	ventr-	belly
coel-	hollow	lith-	stone		
com-/con-/co-	with, together	luna-	moon	uni-	one
contra-	against			zo-	animal
cran-	head	macro-	large		
cyt-	cell	meta-	change		
		micro-	small		
de-	from, away	mono-	single		
deca-	ten	multi-	many		
derm-	skin	morph-	form		
den-	tooth				
di-	two, double	neo-	new		
dia-	through, across	non-	not		
dis-/dif-	apart from, deprive	neur-	nerve		

SUFFIX LIST = endings

SUFFIX	MEANING
-able/ -ible	able to, capable of
-algia	pain
-ectomy	cut out
-graph	instrument for making records
-ism	act of, condition
-itis	inflammation (swelling) or disease
-meter	measure
-ology/ -logy	study of, science of
-phyll	leaf
-pod/ -ped	foot, feet
-scope	look, observe
-sect	cut
-sperm	seed

Example of how to use this list

Word: **TELESCOPE**

Step 1. Look up the first part of the word under the PREFIX LIST

→ **tele** = at a distance

Step 2. Look for the rest of the word under the SUFFIX LIST

→ **scope** = look or observe

So, the whole word means “distance-look” or to look at something at a distance.

Note

- The order of the words may not always seem right; don't worry about that.
- Sometimes you can only find one part of a word but that can be a good clue about the meaning
- You may have extra letters like **o** or **a** or **i** between two parts of a word – they don't mean anything
- If you don't see a word in the suffix list, check the prefix list. Sometimes, words can be both a prefix and a suffix.

Using the Language of Science prefix and suffix lists, figure out the meanings of the following words:

Example: cardiology - heart study or science (study of the heart)

1. phototropism – _____
2. arthropod – _____
3. echinoderm – _____
4. epiglottis – _____
5. multicellular – _____
6. hypodermic – _____
7. anthropology – _____
8. hypothermic – _____
9. gymnosperm – _____
10. pseudopod – _____
11. photograph – _____
12. autograph – _____
13. neuralgia – _____
14. decapod – _____
15. hepatitis – _____
16. cytology – _____
17. zoology – _____
18. microbiology – _____
19. geology – _____
20. biology – _____

Notice that several prefixes can mean the same thing:

21. What are **two** prefixes that mean ONE or SINGLE? _____
22. What are **two** suffixes that mean CUT or CUT OUT? _____
23. What are **two** prefixes that mean ABOVE or ON? _____
24. What are **two** prefixes that mean TWO? _____

Just knowing one part of a word gives you a clue to the whole word:

25. Would you want to be careful when touching an animal called an ECHINDNA? Yes No
26. What does a CARNIVORE eat? _____
27. Is a NEONATE a tiny baby or an old person? _____
28. Is a CRANIOTOMY a serious surgery? Yes No
29. An ALBINO rabbit is what color? _____
30. Does an AMPHIBIAN live on land or water? _____
31. If a medicine is CONTRAINDICATED for you, should you take it? Yes No
32. A DERMATOLOGIST works with what part of the body? _____
33. How does a tiny animal called a ROTIFER travel through the water? _____
(hint: look up rota)
34. If you visited the Elysian Park ARBORETUM, what would you expect to see? _____
35. In 1969, where did the LUNAR mission land? _____
36. What is another name for a CHRONOMETER? _____
37. Why do they call this symbol (*) an ASTERISK? _____