

Welcome to AP Biology

2022-2023

This summer you will delve into the world of biology! We will explore the topic of ecology to feed your appetite for the upcoming year of hard work and success.

This summer assignment has been designed for several purposes:

1. Introduce students to ecological principles including common vocabulary, concepts, and relationships that will be further examined in AP Biology.
2. Review basic population ecology mathematical calculations.

AP Biology is an exciting and rigorous college-level course that requires college quality work. There are so many topics to explore! We will cover (almost) the entire textbook. Some of the information will build on Honors Biology and other chapters will be completely new. Emphasis is placed on conceptual understanding, not just memorization of facts. This course requires a special commitment from you. Part of this commitment is the timely submission of your summer assignment. Completion of this summer assignment will allow us to get a jump start into AP Biology at the beginning of September. The summer assignment gives you the chance to demonstrate that you have the best intentions of giving this course your dedication, intelligence, and humor.

Time management is KEY. Starting in September, you will need to put in at least 3-5 hours of independent work each week to be successful in this course.

There will be an exam on ecology the second week of class (not the first day of class). We will be covering chapters 52-56 on this exam if you would like to read and get a head start over the summer. The summer organism project must be submitted on Google Classroom by the first day of your scheduled class. Late work will be half credit. Plagiarism, copying, and/or cheating will make it very difficult to pass your first unit exam.

Please join my google classroom with code: [ty75ajc](#) by August 15th at the latest!

If you have any questions, email me at sbarro.lauren@rvilleschools.org

Have a great summer!!!

Mrs. Sbarro

AP Biology 2022

DUE: 1st Day Of School (FALL)

SUMMER ASSIGNMENT: Organism Research Project
8-10 pages typed (Please stay in range)

- Page 1 **Cover Page: *Download attachment (Organism List.xlsx)***
- Pages 2 – 7 **Cell Responses
*Research (Underlined titles)***
- LAST PAGE **ABSTRACT
*Complete Last***

12pt. font Times New Roman/Arial
Double Spaced
1" Margins

Cover Page (pg.1): **YOUR ORGANISM**

- Scientific Name & Common Name
- KPCOFGS: Kingdom, Phylum, Class, Order, Family, Genus, Species
- Include a picture

Cells(Structure & Organelles specific with organism)

- Eukaryote or Prokaryote cell? Why?
- Important cell structure and organelles.
- What organelles are common within the cell(s)?
 - Choose 5 and explain the function for each.

Energy

- Cellular Respiration or Photosynthesis or both.
- Describe the chemistry of how it uses energy.
- Aerobic, anaerobic or both.
- Trophic Level on the Food Chain: Explain

Cell Division (Mitosis / Meiosis / Binary Fission)

- Asexual or Sexual
- Life cycle duration
- Survivorship Curve
- Population Growth:
 - Semelparity vs. Iteroparity
 - K vs R Selection

Genetic Traits Exhibited

- Number of chromosomes (# of Sex(es)).
- Structure & Function of organism.
 - Pick 5 unique phenotypes and explain the function for each.

Evolutionary Advantages

- Evolution acts upon the phenotype of an organism. Identify 5 phenotypes and link the advantage(s) for each phenotype.

Niche

- What purpose does the organism fulfill in its environment? What would happen if it wasn't present in its environment?

Communication

- How does it communicate with other organisms?
 - Chemicals, pheromones, audible, physical, visual, coloration, etc...

Responses

- What are Toxic Responses (animal) or Tropisms (plant).
- How does your organism respond?
 - Identify 3 Toxic or tropism responses.

ABSTRACT (Separate Page)- Summary of Report. 1 paragraph ONLY, and this will be the LAST page of your report.

TITLE Must be approximately 10 words long and should easily convey what your report finding(s) are.

I **Introduction-** (1-2 sentences)- Introduce your organism and its niche.

M **Methods** (1-2 Sentences)- Method of survival.

R **Results-** (1-2 sentences)- What evidence supports its continued survival. Because of "M"→"R" occurs, which increases survival.

D **Discussion-** (1 sentence) Convince the reader of your finding(s).

Last Name	# Letters in Full Name	#	Organism	Scientific Name	Chromosome #
A-B	1	1	Adders-tongue	Ophioglossum reticulatum	;1260 !1260
	2	2	Field Horsetail	Equisetum arvense	:216 !216
	3	3	Rattlesnake fern	Botrypus virginianus	:184 !184[2]
	4	4	Carp		:104 !104
	5	5	Red viscacha rat	Tympanoctomys barrerae	:102 !102 [3]
	6	6	Kamraj (fern)	Helminthostachys zeylanica	94
	7	7	Aquatic Rat	Anotomys leander	92[5]
	8	8	Shrimp	Penaeus semisulcatus	86-92 [6]
	9	9	Crab-eating rat (semiaquatic rodent)	Ichthyomys pittieri	92[5]
	10	10	Grape fern	Sceptridium	90
C-D	1	11	Hedgehog Genus Atelerix-African		90
	2	12	Moonworts	Botrychium	90
	3	13	Hedgehog Genus Erinaceus-Woodland		88
	4	14	Nagaho-no-natsu-no-hana-warabi	Botrypus strictus	88
	5	15	Pigeon		80
	6	16	Turkey		80[7]
	7	17	African Wild Dog	Lycaon pictus	78[8]
	8	18	Chicken	Gallus gallus domesticus	78
	9	19	Coyote	Canis latrans	78[8]
	10	20	Dhole	Cuon alpinus	78
E-F	1	21	Dingo	Canis lupus dingo	78[8]
	2	22	Dog	Canis lupus familiaris	78[9]
	3	23	Dove		78[11]
	4	24	Golden Jackal	Canis aureus	78[8]
	5	25	Wolf	Canis lupus	78
	6	26	Maned Wolf	Chrysocyon brachyurus	76
	7	27	Bat-eared Fox	Otocyon megalotis	72[8]
	8	28	Black nightshade	Solanum nigrum	72[12]
	9	29	White-tailed deer	Odocoileus virginianus	70
	10	30	Elk (Wapiti)	Cervus canadensis	68
G-H	1	31	Red Deer	Cervus elaphus	68
	2	32	Gray Fox	Urocyon cinereoargenteus	66[8]
	3	33	Raccoon Dog	Nyctereutes procyonoides	66
	4	34	Chinchilla	Chinchilla lanigera	64 [14]
	5	35	Echidna		63/64
	6	36	Fennec Fox	Vulpes zerda	64[8]
	7	37	Horse	Equus ferus caballus	64
	8	38	Spotted Skunk	Spilogale x	64
	9	39	Mule		63

	10	40	Donkey	<i>Equus africanus asinus</i>	62
I-L	1	41	Giraffe	<i>Giraffa camelopardalis</i>	62
	2	42	Gypsy moth		62
	3	43	Bengal Fox	<i>Vulpes bengalensis</i>	60
	4	44	American Bison	<i>Bison bison</i>	60
	5	45	Cow	<i>Bos primigenius</i>	60
	6	46	Goat		60
	7	47	Woolly Mammoth	<i>Mammuthus primigenius</i>	58
	8	48	Elephant		56
	9	49	Capuchin Monkey	<i>Cebus x</i>	54[15]
	10	50	Hyrax	<i>Hyracoidea</i>	54 !54[16]
M	1	51	Sheep		54
	2	52	Silkworm	<i>Bombyx mori</i>	54
	3	53	Cotton	<i>Gossypium hirsutum</i>	52[18]
	4	54	Platypus	<i>Ornithorhynchus anatinus</i>	52 [19]
	5	55	Kit Fox		50
	6	56	Pineapple	<i>Ananas comosus</i>	50[18]
	7	57	Striped skunk	<i>Mephitis mephitis</i>	50
	8	58	Zebrafish	<i>Danio rerio</i>	50[20]
	9	59	Beaver (Eurasian)	<i>Castor fiber</i>	48
	10	60	Chimpanzee	<i>Pan troglodytes</i>	48[21]
N	1	61	Deer Mouse	<i>Peromyscus maniculatus</i>	48
	2	62	Gorilla		48
	3	63	Hare[22][23]		48
	4	64	Orangutan	<i>Pongo x</i>	48
	5	65	Potato	<i>Solanum tuberosum</i>	48[18]
	6	66	Tobacco	<i>Nicotiana tabacum</i>	48[18]
	7	67	Human	<i>Homo sapiens</i>	46[24]
	8	68	Reeves's Muntjac	<i>Muntiacus reevesi</i>	46
	9	69	Sable Antelope	<i>Hippotragus niger</i>	46
	10	70	Dolphin	<i>Delphinidae Delphis</i>	44
O-P	1	71	Eurasian Badger	<i>Meles meles</i>	44
	2	72	Rabbit		44
	3	73	Fossa	<i>Cryptoprocta ferox</i>	42
	4	74	Oats	<i>Avena sativa</i>	42[18]
	5	75	Raccoon Dog	<i>Nyctereutes viverrinus</i>	42
	6	76	Rat		42
	7	77	Rhesus Monkey		42[25]
	8	78	Wheat	<i>Triticum aestivum</i>	42[18]

	9	79	Wolverine	<i>Gulo gulo</i>	42
	10	80	Beaver (American)	<i>Castor canadensis</i>	40
Q	1	81	European Polecat	<i>Mustela putorius</i>	40
	2	82	Ferret	<i>Mustela putorius furo</i>	40
	3	83	Hyena		40
	4	84	Mango	<i>Mangifera indica</i>	40[18]
	5	85	Mouse	<i>Mus musculus</i>	40[26]
	6	86	American Marten	<i>Martes americana</i>	38
	7	87	Beech Marten	<i>Martes foina</i>	38
	8	88	Cat	<i>Felis catus</i>	38
	9	89	Coatimundi		38
	10	90	European Mink	<i>Mustela lutreola</i>	38
R	1	91	Fisher (animal)		38
	2	92	Lion	<i>Panthera leo</i>	38
	3	93	Oriental Small-clawed Otter	<i>Aonyx cinerea</i>	38
	4	94	Pig		38
	5	95	Pine Marten	<i>Martes martes</i>	38
	6	96	Raccoon	<i>Procyon lotor</i>	38[27]
	7	97	Sable	<i>Martes zibellina</i>	38
	8	98	Sea Otter		38
	9	99	Tanuki/Raccoon Dog	<i>Nyctereutes procyonoides albi</i>	38
	10	100	Tiger	<i>Panthera tigris</i>	38
S	1	101	Earthworm	<i>Lumbricus terrestris</i>	36
	2	102	Long-nosed Cusimanse (mongoose)		36
	3	103	Meerkat	<i>Suricata suricatta</i>	36
	4	104	Red Panda		36
	5	105	Starfish		36
	6	106	Tibetan sand fox	<i>Vulpes ferrilata</i>	36
	7	107	Yellow Mongoose	<i>Cynictis penicillata</i>	36
	8	108	Porcupine	<i>Erethizon dorsatum</i>	34 [14]
	9	109	Red Fox	<i>Vulpes vulpes</i>	34[8]
	10	110	Alfalfa	<i>Medicago sativa</i>	32[18]
T	1	111	American Badger	<i>Taxidea taxus</i>	32
	2	112	European honey bee	<i>Apis mellifera</i>	32
	3	113	Yeast	<i>Saccharomyces cerevisiae</i>	32
	4	114	American Mink	<i>Neovison vison</i>	30
	5	115	Pill millipede	<i>Arthrosphaera magna attems</i>	30
	6	116	Bittersweet nightshade	<i>Solanum dulcamara</i>	24[29][30]
	7	117	Husk Tomato	<i>Physalis pubescens</i>	24[31]

	8	118	Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	24[32]
	9	119	Rice	<i>Oryza sativa</i>	24[18]
	10	120	Snail		24
U	1	121	Bean	<i>Phaseolus</i> sp.	22[18]
	2	122	Virginia Opossum	<i>Didelphis virginiana</i>	22[33]
	3	123	Cannabis	<i>Cannabis sativa</i>	20
	4	124	Maize	<i>Zea mays</i>	20[18]
	5	125	Cabbage	<i>Brassica oleracea</i>	18[18]
	6	126	Radish	<i>Raphanus sativus</i>	18[18]
	7	127	Kangaroo		16
	8	128	Barley	<i>Hordeum vulgare</i>	14[18]
	9	129	Pea	<i>Pisum sativum</i>	14[18]
	10	130	Rye	<i>Secale cereale</i>	14[18]
V	1	131	Slime Mold	<i>Dictyostelium discoideum</i>	12 [35]
	2	132	Swamp Wallaby	<i>Wallabia bicolor</i>	
	3	133	Nematode	<i>Caenorhabditis elegans</i>	
	4	134	Thale Cress	<i>Arabidopsis thaliana</i>	10
	5	135	Fruit fly	<i>Drosophila melanogaster</i>	08 !8[37]
	6	136	Hawkweed		08 !8
	7	137	Mosquito	<i>Aedes aegypti</i>	06 !6[38]
	8	138	Spider mite		04 !4–14[39]
	9	139	Jack jumper ant	<i>Myrmecia pilosula</i>	02 !2[40]
	10	140	green algae (chlorophytes)	Chlorophyta	
W-Z	1	142	green algae (desmids & stoneworts)	Charophyta	
	2	143	liverworts	Marchantiophyta	
	3	144	hornworts	Anthocerotophyta	
	4	145	mosses	Bryophyta	
	5	146	club mosses	Lycopodiophyta	
	6	148	ferns, whisk ferns & horsetails	Pteridophyta	
	7	149	cycads	Cycadophyta	
	8	150	ginkgo	Ginkgophyta	
	9	151	conifers	Pinophyta	
	10	152	gnatophytes	Gnetophyta	
	11	153	flowering plants	Magnoliophyta	

