

ZOOLOGY- THE CRUSTACEANS

IN RESPONSE TO CONVID 19 APRIL 2, 2020

Dear students and parents,

April 2nd , 2020

Beginning two days prior to our last day at school I issued work packets to all students in all classes; the content of which was spanning a two-three week period. Now that our removal from school will continue to at least May 1st, I have provided the following work packets which will span the remainder of the year, should our crisis continue. **The**

following folders are available:

ANATOMY – PHYSIOLOGY

1. Packet – **THE HUMAN REPRODUCTIVE AND ENDOCRINE SYSTEMS.**
2. Packet- **THE HUMAN NERVOUS SYSTEM**
3. *Packet handed out prior to our last day:* **THE HUMAN EXCRETORY SYSTEM**

ZOOLOGY

1. Packet- **STUDY OF THE CRUSTACEANS**
2. Packet- **STUDY OF THE INSECTS**
3. Packet- *handed out prior to our last day-* **INTRODUCTION TO THE ARTRHROPODS- CLASSES MYRIAPODA AND ARACHNIDA**

AP BIOLOGY – as per the newly devised topics of study focus, structure of adapted test, test dates and supports provided as per the guidelines and policies of The College Board

TO ALL STUDENTS! THESE PACKETS WILL BE GUIDED BY THE SAME PROCEDURES WE EMBRACED DURING FALL TECH WEEK WHERE YOU ARE RESPONSIBLE FOR THE WORK IN THE PACKETS- DELIVERED UPON YOUR RETURN TO SCHOOL OR AS PER UNFORESEEN CHANGES WHICH COME OUR WAY. COLLABORATION IS ENCOURAGED- SO STAY IN TOUCH AND DIG IN! YOUR **PACKETS WILL BE A NOTEBOOK GRADE.** EVENTUALLY YOU SHALL TAKE AN **INDIVIDUAL TEST OF EACH PACKET** = AN EXAM GRADE! SCHOOL IS OFF SITE BUT NOT SHUT DOWN SO PLEASE DO THE BODY OF WORK ASSIGNED IN THE PACKETS PROVIDED. YOU CAN'T PRINT THEM THEN WRITE YOUR ANSWERS ON SEPARATE PAPER AND TRANSFER THEM LATER UPON OUR RETURN! IF LEARN TOGETHER- ELECTRONICALLY THAT IS! STAY SAFE! BE SMART! BE A CITIZEN!

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THE CLASS INSECTA – THEIR STRUCTURE AND STORY

A. Power Facts ! *The #1 thing that keeps insects under control are other insects !*

1. %75 of all animal species on Earth are insects. Maybe %85 because many rainforest insects have yet to be classified.
2. HIGH SPEED ADAPTABILITY in just a few generations.
3. EXPERIENCE- have been on Earth for 300, 000, 000 years
4. Eat 1/3 of all we grow !
5. Extreme strength – ounce for ounce – 20 x's stronger than us !
6. Populate and reproduce in phenomenal numbers!
7. Highly FOCUSED and DEDICATED to a cause.

B. CHARACTERISTICS:

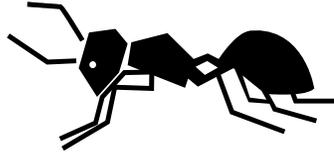
1. 3 distinct body regions (head-thorax-abdomen)
2. 1 pair of antennae
3. exoskeleton made out of flexible chitin instead of calcium carbonate(lime).
4. Highly specialized body appendages
5. Undergo 3 stages of metamorphosis during life cycle (egg – larvae – adult)
6. One or two pair of wings (usually)

C. HABITAT: Able to live anywhere on earth EXCEPT saltwater. This is because the salt is corrosive on their exoskeleton's waxy/oily covering, so they dry out and die.

D. ADAPTATION – 3 TYPES

1. Structural Adaptation(a outer body part is modified) ex. a grasshopper/s jumping leg
2. Behavioral Adaptation (the way it acts or does something) ex. sitting still waiting for prey
3. Physiological Adaptation (some change inside the body) ex. produces a poison gland

E. BODY REGIONS AND AFFILIATIONS



HEAD	THORAX	ABDOMEN
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one pair of antennae.	3 pairs of legs	reproductive organs
two compound eyes.	always!	may have defense or hunting adaptations
specialized <u>mandibles</u>	One or two pairs of wings	
(mouth parts)		

F. STORY OF EXISTENCE

Fossil records indicate that insects were on Earth 300,000,000 years ago. At that point in time life forms lived in or around water because they needed water for existence and reproduction. However, the insects were the first animal type to not only conquer their dependency on water, but they also developed WINGS which enabled them to move great distances away from water environments, deep into the massive un-inhabited water absent land regions. Moving into a neighborhood unchecked by anything else such as space to live, food resources and predators, they took over BIG TIME, where some species grew to huge sizes such as dragonflies which had wing spans of 30" (2 ½ feet)! At this time they got a grip on land existence and inhabitation that they never relinquished. They adapted to eating plants and EACH OTHER in order to survive. Over millions of years they adapted in many ways such as forming colonies and downsizing their body size. Some insects didn't change at all over millions simply because what they were and had WORKED, so why change it. The cock roach is one such insect. This same scenario was set for the reptiles later in Earth's history as they freed themselves from water dependency by developing a dehydration proof body covering of scales and an leathery egg that would not dehydrate. They too took over, growing to huge sizes and reigning kings of the Earth for some 225 million years. Unfortunately, they could not adapt quickly enough to deal with whatever change came about on earth when they became extinct 65 million years ago **BUUUt, the insects could!**

INSECT VIDEOS

1. An Insect hunt and eating a Bird. Praying Mantis snatches Hummingbird, versus vs.....49 secs
2. World's Weirdest - Deadly Praying Mantis Love.....2:23
3. Bombardier Beetle.....47 secs
4. World's Deadliest – Army Ants Eat Everything....2:58
5. Tiny driver ants Vs red ants - Ant Attack - BBC wildlife....2:48
6. 5 Biggest Insects in the World.....2:26
7. 10 Most Beautiful Moths.....55 secs
8. 10 Extremely Dangerous Insects.....2:29
9. 7 Creepy Facts About Cockroaches.....1:25
10. Jewels of the Insect World - Amazing Tropical Beetles 720p HD.....4:13
11. 30 Japanese Giant Hornets kill 30,000 Honey Bees..3:35

12. Monarch Butterfly Metamorphosis time-lapse FYV
1080 HD.....2:43

13. Plagues of Locusts - Wild Africa – BBC.....1:47

- 14,. Malagasy Migratory Locust swarm, April 2013 ::
Essaim de Criquet Migrateur Malgache, avril 2013.....1 :14

15. Monarch butterflies amazing migration to Mexico....2:16

16. This is what REALLY happens inside you when
a mosquito bites.....49 SECS

17. High speed summary of Life inside the Beehive /
Snabbspolning genom livet i bisamhället.....1:59

18. Praying Mantis Attacks Snake!.....1:23

19. Assassin Bug vs. Bat.....1:56

20. Mantis slays Mouse.....1:00

21. Her Majesty, The Termite Queen.....2:08

22. Waterbug catching beetles, tadpoles and backswimmers (#238)4:43

INSECT METAMORPHOSIS AND ADAPTATION

1. Insect undergo a developmental process called "metamorphosis" whereby they move through stages of development.

The most noted are 1. _____ 2. _____ 3. _____ and 4. _____

2. If a certain stage involves eating, then the different stages will not consume the same food resource. Why is this? _____

Research the following insect larvae types and match them with their proper adult.

3. maggot s _____

a. beetles

4. caterpillars _____

b. moths or butterflies

5. grubs _____

c. fly

6. wax worms _____

7. meal worms _____

8. silk worms _____

9. What other familiar creature undergoes metamorphosis? _____

10. Which stage of metamorphosis is the most desirable stage to be in come winter? _____

11. What does the word "morph" mean? _____

12. Describe insect adaptation with respects to the speed at which this occurs and why this is so !

Describe the 3 forms of insect adaptation and include an example of each.

13. _____ - ex. _____

14. _____ ex _____

15. _____ ex _____

16.-20. At different points in geologic history, both the dinosaurs and the insects took over the terrestrial habitats of Earth in short business, growing to huge sizes and dominating the planet. All things change, and the Earth does all through its existence. Something about these changes axed the dinosaurs, and is just a thousand years, they were gone. However, the insects survived. Why is this so?

21- 22 Did you know that a caterpillar can eat 25'x its own weight every day. What two things must constantly take place in order for this to occur? _____ and _____

23.25. List three areas of an insects body that represent a wide range of adaptations in the insect group.

23. _____ 24. _____

THIS REALLY

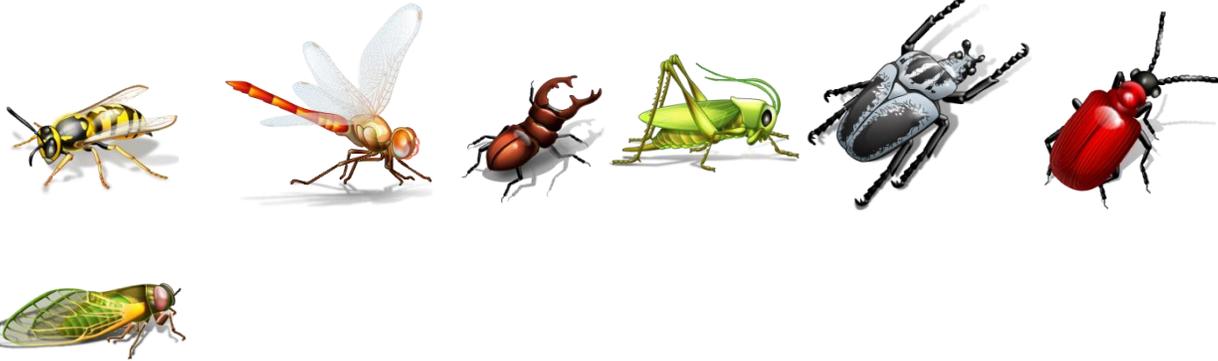


“BUGS”

ME

BUZZ CHALLENGE

PART ONE: IDENTIFY THE TAXONOMIC ORDER FOR EACH INSECT BELOW:





PART TWO: “ THE INSECT TRIPLE PLAY”

All life forms have three choices when the environmental conditions around them change in a harsh way.

What are these 3 choices 1. _____ 2. _____ 3. _____

4. Which one of these ways did the insect score with a **“triple play”** so to speak? Explain your choice.

5-6 If insects were as big as us, we would not have a chance. Give two things about insects that would serve to

support this claim. 5. _____ 6. _____

7. If the following event portrayed in 5 and 6 above were to really happen, what would eventually be the ruination of the human sized insects? _____

PART THREE – CONQUERERS AND MASTERS OF THEIR DOMAIN

We know that insects cannot live in saltwater due to the corrosive nature of the oils on their chitin based exoskeletons. However, they have dominated the land environment for over 300 million years, long before the existence of any of the vertebrate animals. At the time life was limited to living near, in or around fresh water simple because all things need water to survive. This left the vast areas away from water uninhabited by any life forms, minus plants, which of course, achieved water acquisition with their roots. Well, as this buggy story goes, the insects found a way around this. The result is that they got a grip on the interior land environment at the “ground level” and have maintained this dominance for over 300 million years.

Discuss how they did this and why their answered to this problem worked for them in this, and many other scenarios in their lives and overall existence throughout time.

INSECTS AS FOOD ??

AN ECOLOGICAL INEVITABLE ?

1.HOW TO EAT BUGS !.....8:35

(watch and take casual notation)

2. SHOULD WE ALL BE EATING INSECTS?3:07

(watch and take detailed notation particularly with regards to comparative values expressed with detailed numerical values.

3.FIND A VIDEO REGARDING SOME MANNER IN WHICH INSECTS ARE USED BY HUMANKIND. Write a brief description and the youtube video title and time as seen in parts 1 and 2 above.

Be prepared to be called at random to share with the class.