

Dover High School  
Honors Biology Summer Assignment 2018-2019

Name \_\_\_\_\_

Advanced Organizer for *Survival of the Sickest* by Dr. Sharon Moalem

Our first unit explores evolution, the second unit explores genetics. *Survival of the Sickest* discusses human diseases from a genetic (epigenetic), evolutionary and historical perspective. You are being asked to thoroughly read and find EVIDENCE that explains the connection between evolution and genetics. Use the table below to record your findings. Chapter 1 is completed so you can see the intent of the organizer.

Either bring a completed hard copy or submit an electronic version to your teacher's Google Classroom on or before the first day of school. This portion of the summer assignment counts as 10% of your grade. The other 90% is a performance assessment given in class. You will be allowed to use your reading guide on that portion of the assessment.

The rubric below pertains to the advanced organizer and will be used to score the 10% portion that you completed.

	<b>4 Exceeding Expectations</b>	<b>3 Meeting Expectations</b>	<b>2 Approaching Expectations</b>	<b>1 Emerging Understanding</b>
<b>Honors Biology Summer Assignment Advanced Reading Guide</b>	For each chapter, I can provide ample evidence that I have read the text closely, have done outside research to make sense of what I have read and can cite detailed relevant examples.	For each chapter, I can provide evidence that I have read the text closely, have made sense of what I have read and can cite relevant examples.	For most chapters I can provide some evidence that I have read the text closely, have tried to make sense of what I have read and have cited some examples.	I can provide limited evidence that I have read the text closely.

**Rubric to Grade Conversion:**

<b>4</b>	95+		<b>3</b>	84-85		<b>2</b>	65		<b>1</b>	55
<b>3.9</b>	95		<b>2.9</b>	82-83		<b>1.9</b>	64		<b>0.9</b>	45-54
<b>3.8</b>	94		<b>2.8</b>	80-81		<b>1.8</b>	63		<b>0.8</b>	40-44
<b>3.7</b>	93		<b>2.7</b>	78-79		<b>1.7</b>	62		<b>0.7</b>	35-39
<b>3.6</b>	91-92		<b>2.6</b>	76-77		<b>1.6</b>	61		<b>0.6</b>	30-34
<b>3.5</b>	90		<b>2.5</b>	74-75		<b>1.5</b>	60		<b>0.5</b>	25-29
<b>3.4</b>	89		<b>2.4</b>	72-73		<b>1.4</b>	59		<b>0.4</b>	20-24
<b>3.3</b>	88		<b>2.3</b>	70-71		<b>1.3</b>	58		<b>0.3</b>	15-19
<b>3.2</b>	87		<b>2.2</b>	68-69		<b>1.2</b>	57		<b>0.2</b>	10-14
<b>3.1</b>	86		<b>2.1</b>	66-67		<b>1.1</b>	56		<b>0.1</b>	0-9

<b>Chapter 1 – Ironing It Out</b>
<u>Disease/Ailment Description</u> Hemochromatosis, the accumulation of too much iron that is absorbed from dietary intake. Noninfectious disease
<u>Geographical Location/Environmental Factor(s)</u> Western Europe initially, spreading continental; Possibly originated in the Viking population
<u>Adaptation via Natural Selection (i.e. how did this condition help humans survive?)</u>

Having the adaptation to accumulate iron increased survival changes against the bubonic plague, Black Death, an infectious disease.

Genetic Background/Response

Recessive gene to accumulate iron reserves, keep the iron away from pathogens and host's macrophages.

Present Medical Perspectives/Practices

Blood letting (phlebotomy), iron dosing

More research needed to detect the effect of antibiotics on iron reserves and chelating iron stores during infections.

Research Notes with References

- homozygous C282Y mutation of the HFE gene as the major cause of hereditary iron overload in Caucasians of Northern European descent (5/1/2008 | The Hematologist)
- Heparin is a potent peptide hormone that controls body iron distribution by turning off intestinal iron absorption and sequestering iron in tissue macrophages. (American Society Hematology 3/1/2006)

**Chapter 2 – A Spoonful of Sugar Helps the Temperature Go Down**

Disease/Ailment Description

Geographical Location/Environmental Factor(s)

Adaptation via Natural Selection (i.e. how did this condition help humans survive?)

Genetic Background/Response

<u>Present Medical Perspectives/Practices</u>
Research Notes with References

<b>Chapter 3 – The Cholesterol Also Rises</b>
<u>Disease/Ailment Description</u>
<u>Geographical Location/Environmental Factor(s)</u>
Adaptation via Natural Selection (i.e. how did this condition help humans survive?)
<u>Genetic Background/Response</u>
<u>Present Medical Perspectives/Practices</u>
Research Notes with References

<b>Chapter 4 – Hey Bud, Can You Do Me a Favor?</b>
<u>Disease/Ailment Description</u>
<u>Geographical Location/Environmental Factor(s)</u>
Adaptation via Natural Selection (i.e. how did this condition help humans survive?)
<u>Genetic Background/Response</u>

<u>Present Medical Perspectives/Practices</u>
Research Notes with References

<b>Chapter 5 – Of Microbes and Men</b>
<u>Disease/Ailment Description</u>
<u>Geographical Location/Environmental Factor(s)</u>
<u>Adaptation via Natural Selection (i.e. how did this condition help humans survive?)</u>
<u>Genetic Background/Response</u>
<u>Present Medical Perspectives/Practices</u>
Research Notes with References

<b>Chapter 6 – Jump into the Gene Pool</b>
<u>Disease/Ailment Description</u>
<u>Geographical Location/Environmental Factor(s)</u>
<u>Adaptation via Natural Selection (i.e. how did this condition help humans survive?)</u>
<u>Genetic Background/Response</u>

<u>Present Medical Perspectives/Practices</u>
Research Notes with References

<b>Chapter 7 – Methyl Madness: Road to the Final Phenotype</b>
<u>Disease/Ailment Description</u>
<u>Geographical Location/Environmental Factor(s)</u>
<u>Adaptation via Natural Selection (i.e. how did this condition help humans survive?)</u>
<u>Genetic Background/Response</u>
<u>Present Medical Perspectives/Practices</u>
Research Notes with References

<b>Chapter 8 – That’s Life: Why You and Your iPod Must Die</b>
<u>Disease/Ailment Description</u>
<u>Geographical Location/Environmental Factor(s)</u>
<u>Adaptation via Natural Selection (i.e. how did this condition help humans survive?)</u>
<u>Genetic Background/Response</u>

<u>Present Medical Perspectives/Practices</u>
Research Notes with References