

GaDOE One Day
AP Biology Workshop
East Coweta High School

Tiffany Shoham Jones

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Welcome...

apbiopenguins.weebly.com

- 9 years of Classroom Experience
- 5 Years of AP Reading Experience
- 3 Year AP Question Writer
- 3 Year AP Mentor
- Last Year: 81% Pass Rate



Agenda

- 8:30 – 9:00 Introductions & My Classroom Dynamics
- 9:00 – 10:00 DNA Replication Manipulatives
- 10:00 – 10:20 FRQ Workshop
- 10:20 – 10:35 BREAK
- 10:35 – 11:00 FRQ Workshop
- 11:00 – 11:45 Paper Gel Electrophoresis
- 11:45 – 1:00 Lunch and Informal Discussion Groups
- 1:00 – 1:30 Data Talk
- 1:30 – 2:30 HHMI Population Genetics Activity
- 2:30 – 2:40 HHMI Prizes
- 2:40 – 3:00 Evaluation & Dismissal



My Classroom Dynamics

Classroom Schedule

- Monday – Notes Quiz
- Tuesday – Vocabulary Practice/Games
- Wednesday – FRQ
- Thursday – Scientific Application/SSE
- Friday – CER/Data Nuggets



DNA Replication Manipulatives

- You will be given a paper with the code for a strand of DNA of a suspect, victim, or murderer; using the pop-beads (see key) construct the DNA strand you were given.
- Remember your base-pairing rules (A – T & C – G) and directionality of the structure (5' → 3' & 3' ← 5')
- THIS STRAND WILL BE VERY IMPORTANT SO BE SURE TO CONSTRUCT IT CORRECTLY!!
 - Note: There are not enough clear plastic pieces for every nitrogenous base. This is on purpose to save your fingers when it is time to disassemble/replicate

A = yellow bead

T = orange bead

G = green bead

C = blue bead

Phosphate = red bead

Sugar (deoxyribose) = white bead

Hydrogen bond = clear rod

DNA Replication Manipulatives



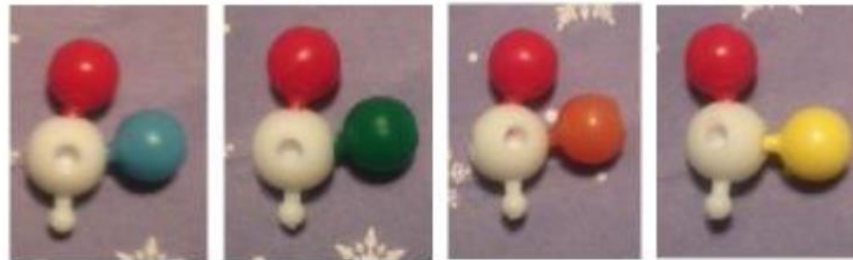
- Yes, I know you love me...
- You will be making a DNA strand using a specific sequence given to you in the folder
 - Recall...
 - Adenine binds with thymine (yellow & orange)
 - Cytosine binds with guanine (blue & green)
 - DNA is ANTIPARALLEL
 - 5' end is phosphate (red bead)
 - 3' end is hydroxyl (white bead)
 - **WHEN BUILDING... RED BEAD MUST BE FIRST AT 5' END AND THE LAST BEAD IN CHAIN SHOULD BE WHITE WITH A NUB!**

DNA Replication Manipulatives



DNA Replication Manipulatives

- Using your Crime Scene DNA, you are to complete all steps of DNA Replication (recall your reading of the jobs of the various enzymes and the directionality of replication)
 - Use the video on itsLearning to ensure understanding of DNA Replication with the popbeads.
- After completion, please REASSEMBLE the container appropriately.
 - Easiest way to break the strand without breaking the nucleotides is to pop apart at the white nubs in the chain



- When you are finished you will reset the container back to normal
 - 15 of each color NUCLEOTIDE
 - DO NOT TAKE APART THE NUCLEOTIDES
 - Each nucleotide should look like above with the white bead attached to a color on the side and the red bead on the bottom (white bead with nub and red bead without nub)
 - 10 connectors in each baggie
 - Return extra pieces to their homes

FRQ Workshop

AP Reading Experience

- Collaboration with other teachers
- Insight to scoring guidelines
(what is acceptable or not acceptable)
- 2020 AP Reading (Biology)
Kansas City June 11 – 18

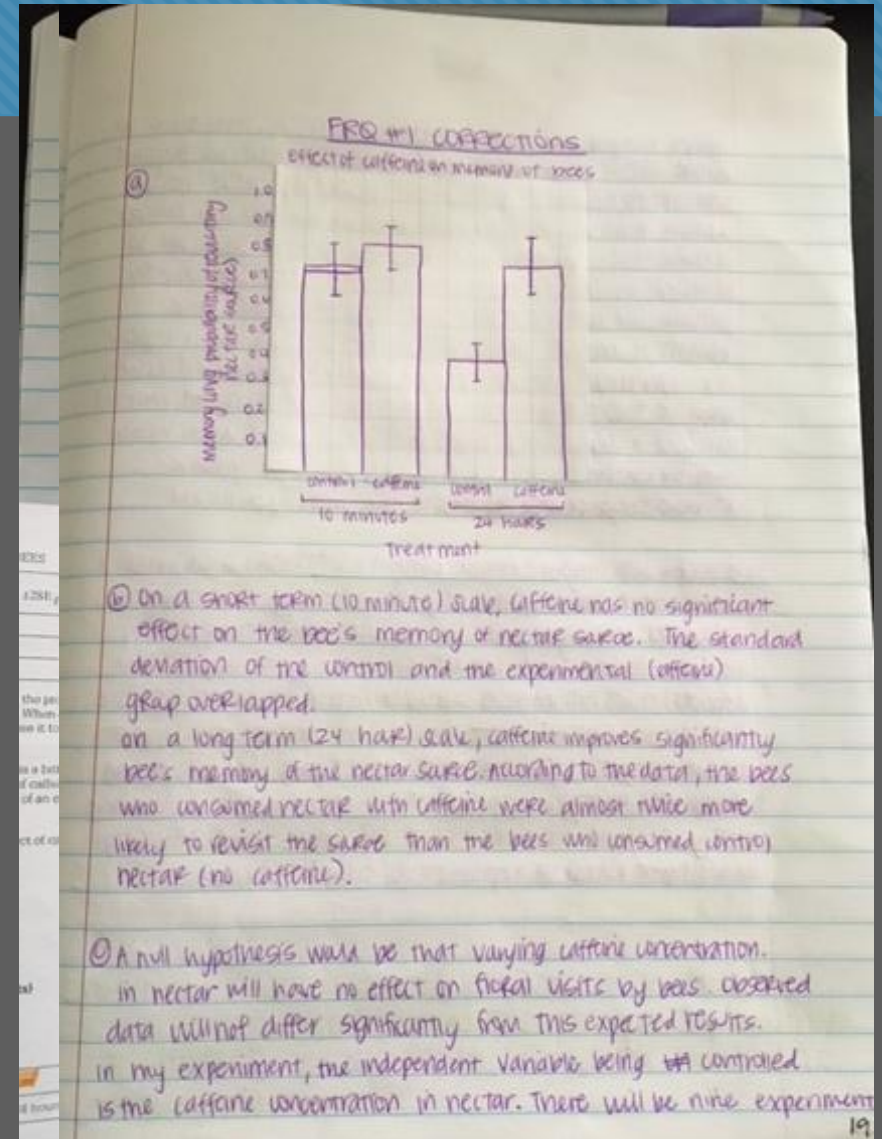


collegeboard.org/readAP

FRQ Workshop – FRQ Notebook

FRQ Notebook

- Located in Composition Notebook
- Tape/Glue Question
- 20 Minutes to Write FRQ
- Self/Peer Grade
- Tape/Glue Scoring Guidelines
- Corrections



FRQ Workshop – 2018 #2

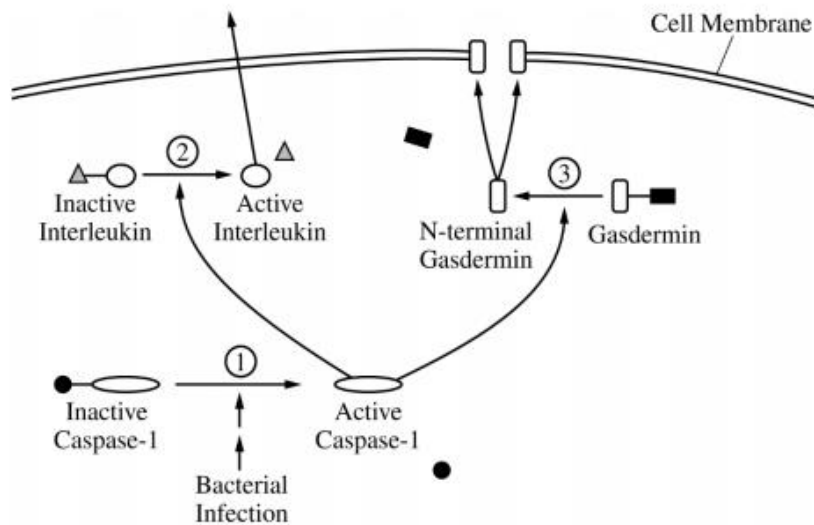


Figure 1. Cellular response to infection by pathogenic bacteria

Some pathogenic bacteria enter cells, replicate, and spread to other cells, causing illness in the host organism. Host cells respond to these infections in a number of ways, one of which involves activating particular enzymatic pathways (Figure 1). Cells normally produce a steady supply of inactive caspase-1 protein. In response to intracellular pathogens, the inactive caspase-1 is cleaved and forms an active caspase-1 (step 1). Active caspase-1 can cleave two other proteins. When caspase-1 cleaves an inactive interleukin (step 2), the active portion of the interleukin is released from the cell. An interleukin is a signaling molecule that can activate the immune response. When caspase-1 cleaves gasdermin (step 3), the N-terminal portions of several gasdermin proteins associate in the cell membrane to form large, nonspecific pores.

Researchers created the model in Figure 1 using data from cell fractionation studies. In the experiments, various parts of the cell were separated into fractions by mechanical and chemical methods. Specific proteins known to be located in different parts of the cell were used as markers to determine the location of other proteins. The table below shows the presence of known proteins in specific cellular fractions.

CELL FRACTIONS CONTAINING DIFFERENT CELLULAR PROTEINS

	Aconitase (Krebs cycle protein)	DNA polymerase	GAPDH (glycolytic protein)	Sodium- potassium pump	NF- κ B (Immune response protein)
Whole cell sample	+	+	+	+	+
Fraction 1	+				
Fraction 2		+			+
Fraction 3			+		+
Fraction 4				+	

+ = presence of protein

FRQ Workshop – 2018 #2

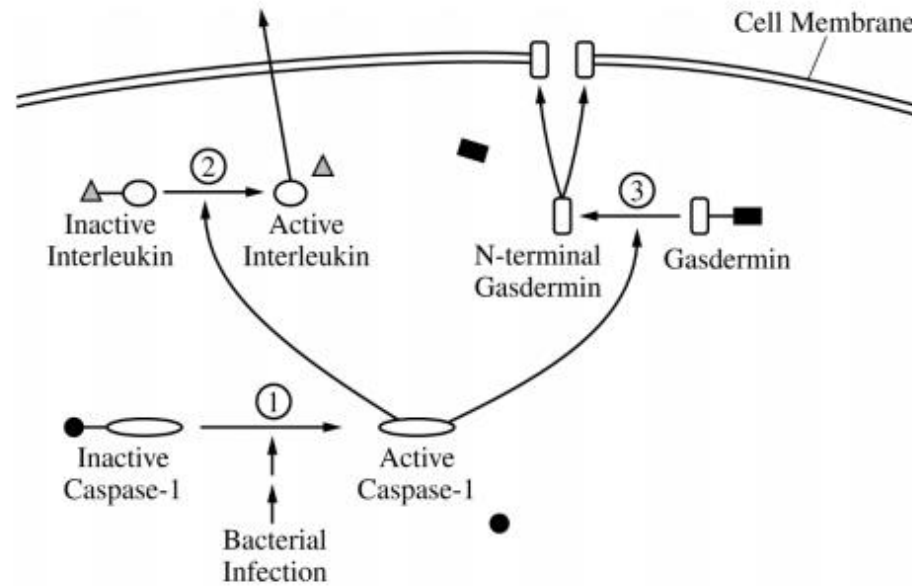


Figure 1. Cellular response to infection by pathogenic bacteria

(a) **Describe** the effect of inhibiting step 3 on the formation of pores **AND** on the release of interleukin from the cell.

Description (2 points)

- Pores will not form.
- Interleukin release will not be affected/interleukin release continues.

FRQ Workshop – 2018 #2

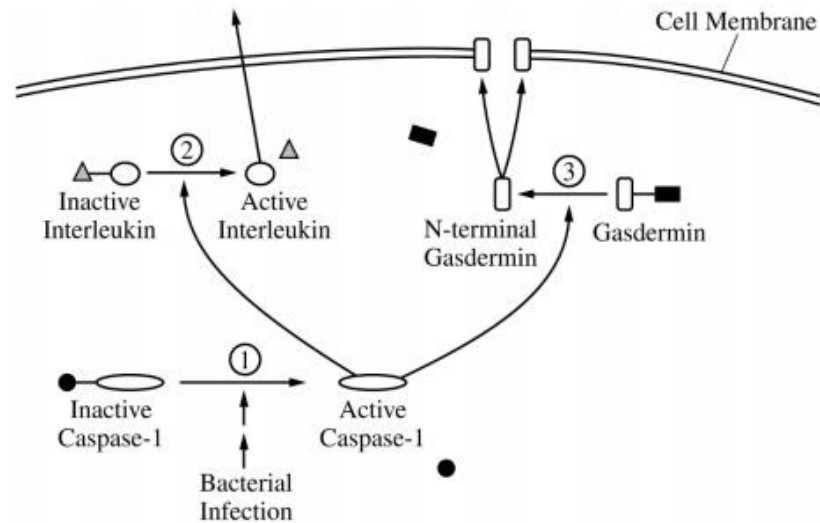


Figure 1. Cellular response to infection by pathogenic bacteria

(b) **Make a claim** about how cleaving inactive caspase-1 results in activation of caspase-1. A student claims that preinfection production of inactive precursors shortens the response time of a cell to a bacterial infection. **Provide ONE reason** to support the student's claim.

Claim (1 point)

- Removes inhibitor/repressor/inhibitory domain of protein
- Changes the shape/protein structure

Reasoning (1 point)

- Cleaving a precursor/protein/molecule is faster than making one upon infection.
- Cells do not have to wait for transcription and translation/protein synthesis.

FRQ Workshop – 2018 #2

(c) A student claims that the NF- κ B protein is located in the cytoplasm until the protein is needed for transcription. **Justify** the student's claim with evidence. **Identify TWO** fractions where N-terminal gasdermin would be found in cells infected with pathogenic bacteria.

Justification (1 point)

- NF- κ B and glycolytic enzymes/GAPDH are found together (in the cytoplasm).

Identification (2 points)

- Fraction 3
- Fraction 4

CELL FRACTIONS CONTAINING DIFFERENT CELLULAR PROTEINS

	Aconitase (Krebs cycle protein)	DNA polymerase	GAPDH (glycolytic protein)	Sodium- potassium pump	NF- κ B (Immune response protein)
Whole cell sample	+	+	+	+	+
Fraction 1	+				
Fraction 2		+			+
Fraction 3			+		+
Fraction 4				+	

+ = presence of protein

FRQ Workshop – 2018 #2

(d) **Describe** the most likely effect of gasdermin pore formation on water balance in the cell in a hypotonic environment.

Description (1 point)

- Water enters the cell.

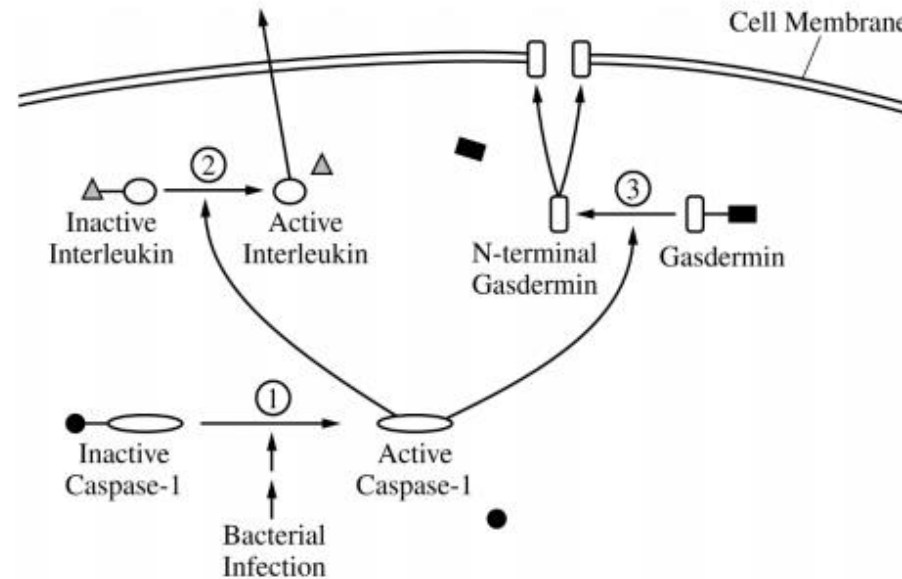


Figure 1. Cellular response to infection by pathogenic bacteria

FRQ Workshop – 2018 #2

(e) **Explain** how gasdermin pore formation AND interleukin release contribute to an organism's defense against a bacterial pathogen.

Explanation (2 points)

- Cell lysis destroys infected cells OR cell lysis prevents bacteria from replicating.
- Interleukin signaling will stimulate immune cells/components of the immune system (to destroy the infected cells or bacteria).

FRQ Workshop – 2018 #2

(a) **Describe** the effect of inhibiting step 3 on the formation of pores AND on the release of interleukin from the cell.

Description (2 points)

- Pores will not form.
- Interleukin release will not be affected/interleukin release continues.

(a) By inhibiting step 3, caspase 1 won't end up cleaving gasdermin. This means the response of large non-specific pores forming won't occur as there won't be N-terminal portions of gasdermin proteins to associate and form the pores in the cellular membrane.

By inhibiting the release of interleukin, the immune response can't be activated as interleukin is the signaling molecule. A consequence would be far spreading of the bacteria and illness.

FRQ Workshop – 2018 #2

(b) **Make a claim** about how cleaving inactive caspase-1 results in activation of caspase-1. A student claims that preinfection production of inactive precursors shortens the response time of a cell to a bacterial infection. **Provide ONE reason** to support the student's claim.

Claim (1 point)

- Removes inhibitor/repressor/inhibitory domain of protein
- Changes the shape/protein structure

Reasoning (1 point)

- Cleaving a precursor/protein/molecule is faster than making one upon infection.
- Cells do not have to wait for transcription and translation/protein synthesis.

(b) Cleaving inactive caspase-1 leads to active caspase 1 because it removes repressor proteins that maintain the inactive form of caspase-1.

One reason preinfection production of inactive precursors shortens response time is that ~~the~~ it reduces the number of steps/pathways to initiate cellular response. It won't be necessary to activate the genes in order to transcribe and translate the inactive precursors if they are already present.

FRQ Workshop – 2018 #2

(c) A student claims that the NF- κ B protein is located in the cytoplasm until the protein is needed for transcription. **Justify** the student's claim with evidence. **Identify TWO** fractions where N-terminal gasdermin would be found in cells infected with pathogenic bacteria.

Justification (1 point)

- NF- κ B and glycolytic enzymes/GAPDH are found together (in the cytoplasm).

Identification (2 points)

- Fraction 3
- Fraction 4

(c) Evidence that NF- κ B remains in the cytoplasm till needed comes from fraction 3. ~~add~~
~~It~~ This is because GAPDH is a glycolytic protein that would be present in the cytoplasm to the cellular membrane. It wouldn't be in an organelle. As a result, ~~it would be present~~ ^{the fraction 3} indicates NF- κ B isn't being used for transcription and would be located in the cytoplasm until needed. If ~~it wasn't~~ NF- κ B isn't generated until transcription is taking place, then NF- κ B wouldn't be in a fraction with GAPDH, a glycolytic protein. ~~It~~ NF- κ B would only be observed near DNA such as in fraction 2.
N terminal gasdermin would be found in fractions 4 and 3 since these fractions are closest to the cellular membrane.

FRQ Workshop – 2018 #2

(d) **Describe** the most likely effect of gasdermin pore formation on water balance in the cell in a hypotonic environment.

Description (1 point)

- Water enters the cell.

(d) In a hypotonic ~~environ~~ environment, gasdermin pore formation would allow water to move into the cell in a net ^{amount} ~~increase~~ ~~number~~. This is because the cell would have a higher solute concentration than the surrounding environment and diffusion of water ^{involves moving} ~~is~~ towards higher solute concentration. ~~is order to decrease~~ This is regarded as osmosis.

FRQ Workshop – 2018 #2

(e) **Explain** how gasdermin pore formation AND interleukin release contribute to an organism's defense against a bacterial pathogen.

Explanation (2 points)

- Cell lysis destroys infected cells OR cell lysis prevents bacteria from replicating.
- Interleukin signaling will stimulate immune cells/components of the immune system (to destroy the infected cells or bacteria).

(e) Interleukin would contribute to an organism's defense by initiating an immune response. This may cause the release of white blood cells, helper T cells, and other species to limit bacterial infection.

Gasdermin pore formation may help against the pathogen by allowing movement of many species in and out of the cell rather than through transport proteins. This may include signaling molecules that will initiate intracellular responses.

FRQ Workshop – 2018 #2

Student A scored an 8

Student B scored a 6

Student C scored a 10

There are many restaurants nearby. Chick fil A, McDonalds, Burger King, Taco Bell, KFC, Bojangles, Wendy's, Chylaca's Mexican Restaurant, China Kitchen, Duff's Wings, Subway, Jersey Mike's, Dicky's BBQ, Wing N Things, Tomo Japanese & Sushi - all within 5 miles.

Please choose fast options so you won't be late for the afternoon sessions

LUNCH BREAK

11:45 – 1:00

FRQ Workshop – 2017 #1

TABLE 1. EFFECT OF 0.1 mM CAFFEINE ON MEMORY IN BEES

Treatment	Memory (average probability of revisiting a nectar source $\pm 2SE_{\bar{x}}$)	
	10 Minutes	24 Hours
Control	0.72 \pm 0.09	0.41 \pm 0.07
Caffeine	0.83 \pm 0.07	0.78 \pm 0.08

In flowering plants, pollination is a process that leads to the fertilization of an egg and the production of seeds. Some flowers attract pollinators, such as bees, using visual and chemical cues. When a bee visits a flower, in addition to transferring pollen, the bee can take nectar from the flower and use it to make honey for the colony.

Nectar contains sugar, but certain plants also produce caffeine in the nectar. Caffeine is a bitter-tasting compound that can be toxic to insects at high concentrations. To investigate the role of caffeine in nectar, a group of researchers studied the effect of 0.1 mM caffeine on bee behavior. The results of an experiment to test the effect of caffeine on bees' memory of a nectar source are shown in Table 1.

FRQ Workshop – 2017 #1

TABLE 1. EFFECT OF 0.1 mM CAFFEINE ON MEMORY IN BEES

Treatment	Memory (average probability of revisiting a nectar source $\pm 2SE_{\bar{x}}$)	
	10 Minutes	24 Hours
Control	0.72 \pm 0.09	0.41 \pm 0.07
Caffeine	0.83 \pm 0.07	0.78 \pm 0.08

(a) On the axes provided, **construct** an appropriately labeled graph to illustrate the effect of caffeine on the probability of bees revisiting a nectar source (memory). **(3 points)**

Construct graph (3 points)

- Correctly plotted means on a bar graph/modified bar graph
- Appropriate labels, units, and scaling
- Correctly plotted error bars

FRQ Workshop – 2017 #1

(b) Based on the results, **describe** the effect of caffeine on each of the following: **(2 points)**

- Short-term (10 minute) memory of a nectar source
- Long-term (24 hour) memory of a nectar source

Description (2 points)

Short-term	Caffeine does not affect short-term memory/memory at 10 minutes.
Long-term	Caffeine improves/increases the long-term memory/memory at 24 hours.

FRQ Workshop – 2017 #1

(c) **Design an experiment** using artificial flowers to investigate potential negative effects of increasing caffeine concentrations in nectar on the number of floral visits by bees. **Identify** the null hypothesis, an appropriate control treatment, and the predicted results that could be used to reject the null hypothesis. **(3 points)**

Identification (3 points; 1 point per row)

Null hypothesis	Increasing caffeine concentration has no effect (on the number of floral visits by bees).
Control	(Nectar/flowers with) no caffeine
Predicted results	<ul style="list-style-type: none">• The number of floral visits by bees is different at increasing caffeine concentrations.• The number of floral visits by bees is different than the control.

FRQ Workshop – 2017 #1

(d) Researchers found that nectar with caffeine tends to have a lower sugar content than nectar without caffeine. Plants use less energy to produce the caffeine in nectar than they do to produce the sugar in nectar. **Propose ONE benefit** to plants that produce nectar with caffeine and a lower sugar content. **Propose ONE cost** to bees that visit the flowers of plants that produce nectar with caffeine and a lower sugar content. **(2 points)**

Proposed plant benefit (1 point)

- More pollen is transferred/more visits by pollinators.
- Plants store energy/have more energy available for other uses.

Proposed bee cost (1 point)

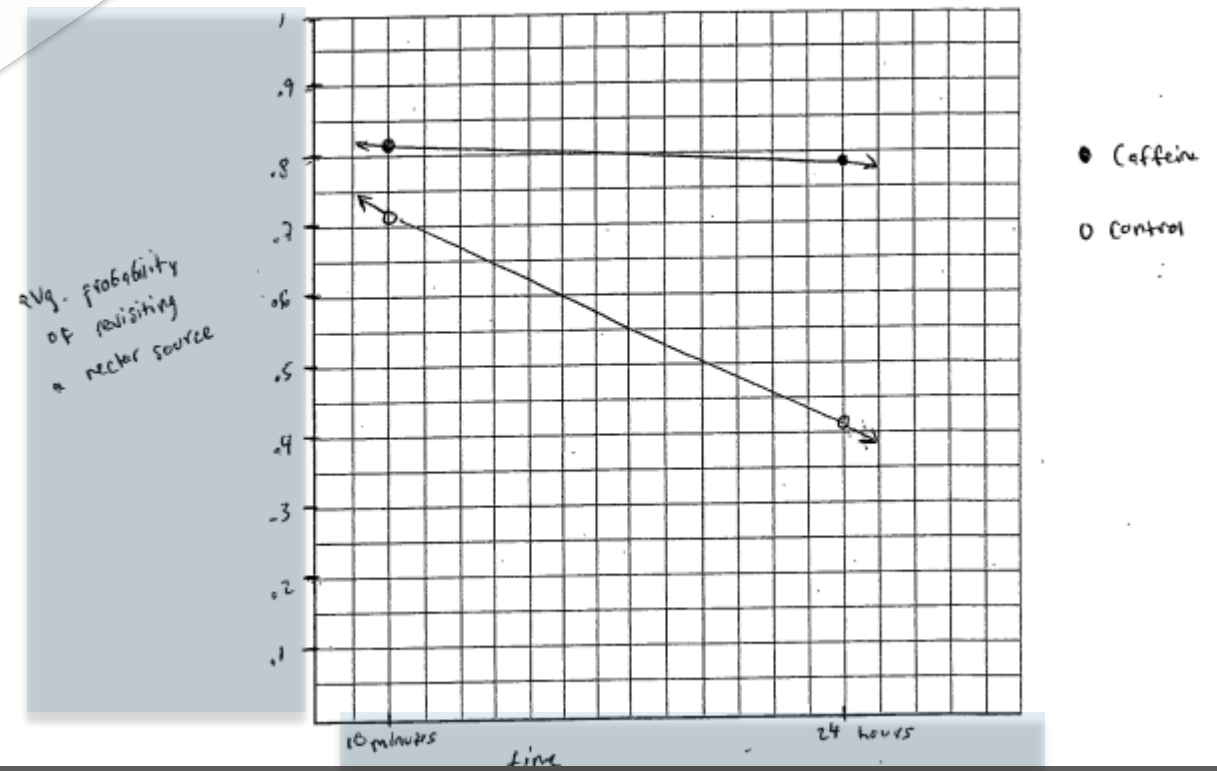
- (Individual) bees visit more flowers.
- (Individual) bees use more energy.
- The colony/bees may produce less honey
- The colony/bees may produce lower quality honey/honey that provides less energy.

FRQ Workshop – 2017 #1

(a) On the axes provided, **construct** an appropriately labeled graph to illustrate the effect of caffeine on the probability of bees revisiting a nectar source (memory). **(3 points)**

Construct graph (3 points)

- Correctly plotted means on a bar graph/modified bar graph
- Appropriate labels, units, and scaling
- Correctly plotted error bars



FRQ Workshop – 2017 #1

(b) Based on the results, **describe** the effect of caffeine on each of the following: (2 points)

- Short-term (10 minute) memory of a nectar source
- Long-term (24 hour) memory of a nectar source

Description (2 points)

Short-term	Caffeine does not affect short-term memory/memory at 10 minutes.
Long-term	Caffeine improves/increases the long-term memory/memory at 24 hours.

b The short term effects of caffeine on memory of a nectar source is that there is a slight increase in memory. The long term effects of caffeine on memory of a nectar source is that there is a large increase in memory.

FRQ Workshop – 2017 #1

c

H_0 : Caffeine concentration has no effect on number of floral visits by bees.

H_1 : Caffeine concentration has negative effects on number of floral visits by bees.

First, you would take 1000 artificial flowers and 500 bees.

Take a random sample of 500 artificial flowers and put caffeine in them (use the same amount of caffeine for each flower). Put all the flowers in a controlled environment and assort them randomly. Let the bees loose in the controlled environment and over a period of a week track how many visits each artificial flower gets. The control treatment is the 500 flowers without caffeine. The predicted results are that on average the flowers without caffeine in turn will get more visits by bees than flowers with caffeine, and these results could be used to reject the null hypothesis H_0 .

Identification (3 points; 1 point per row)

Null hypothesis	Increasing caffeine concentration has no effect (on the number of floral visits by bees).
Control	(Nectar/flowers with) no caffeine
Predicted results	<ul style="list-style-type: none">• The number of floral visits by bees is different at increasing caffeine concentrations.• The number of floral visits by bees is different than the control.

FRQ Workshop – 2017 #1

(d) Researchers found that nectar with caffeine tends to have a lower sugar content than nectar without caffeine. Plants use less energy to produce the caffeine in nectar than they do to produce the sugar in nectar. **Propose ONE benefit** to plants that produce nectar with caffeine and a lower sugar content. **Propose ONE cost** to bees that visit the flowers of plants that produce nectar with caffeine and a lower sugar content. (2 points)

Proposed plant benefit (1 point)

- More pollen is transferred/more visits by pollinators.
- Plants store energy/have more energy available for other uses.

Proposed bee cost (1 point)

- (Individual) bees visit more flowers.
- (Individual) bees use more energy.
- The colony/bees may produce less honey
- The colony/bees may produce lower quality honey/honey that provides less energy.

one benefit would be that the average probability

the bees revisiting that nectar source is increased with

more caffeine. One cost to the bees would be that

caffeine is toxic to insects at high concentrations.

FRQ Workshop – 2017 #1

Student A scored a 6

Student B scored a 10

Student C scored an 8

Paper Gel Electrophoresis

NEGATIVE ELECTRODE

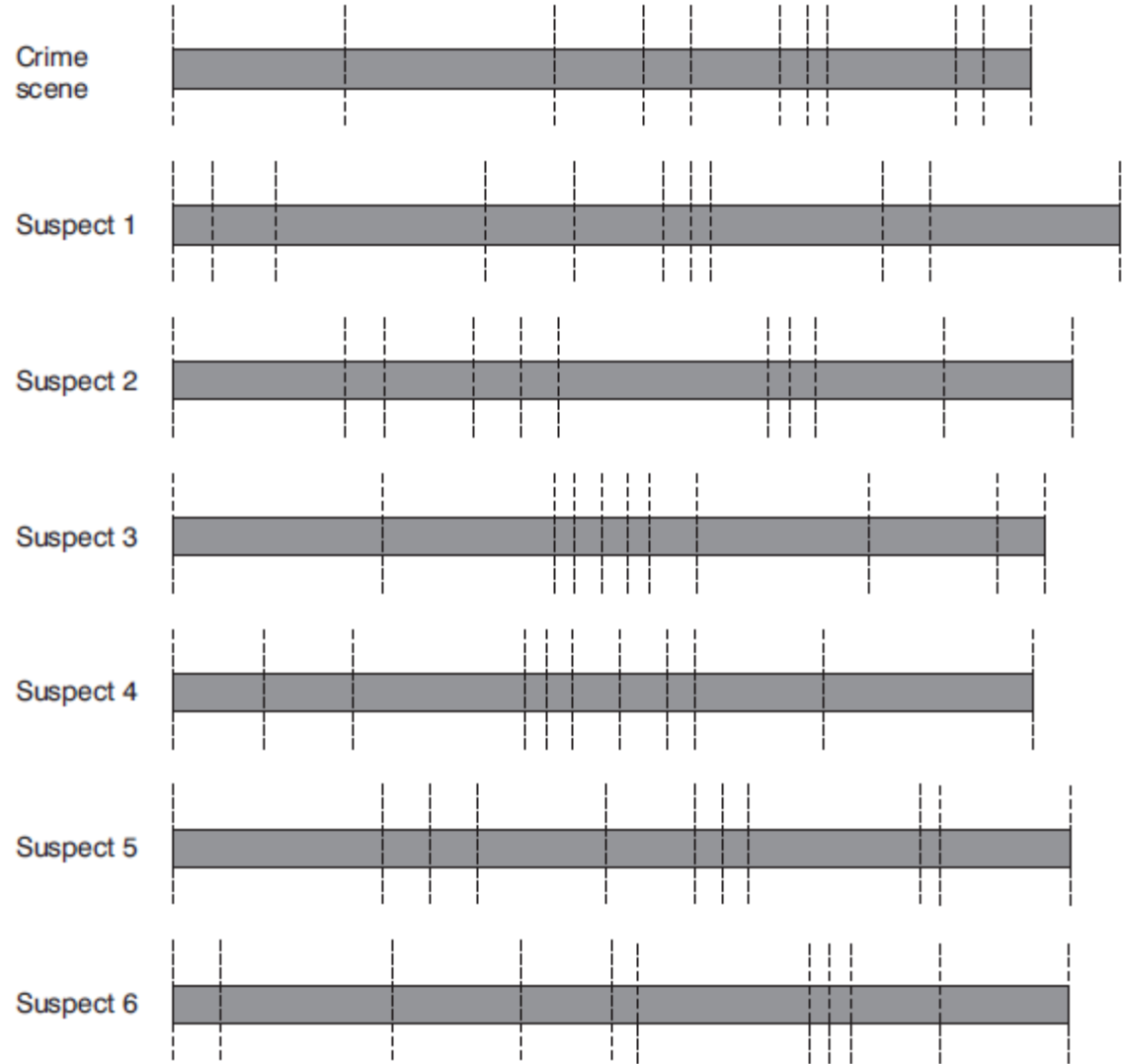
Sample Sizes	Well to Deposit DNA	Well to Deposit DNA	Well to Deposit DNA
	Suspect #1	Suspect #2	Suspect #3
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

POSITIVE ELECTRODE

Models of DNA Samples

Dotted lines represent locations where restriction enzymes will cut these pieces of DNA.

DNA Samples



Data Talk

Data Analysis

- Quiz: Break down by Section
- Exam: Break down by Chapter/Topic
- Used for:
 - Strengths/Weakness
 - Item Analysis
 - Communication
 - Personalized Remediation

Ch. 8	Avg	Ch. 9	Avg	Ch. 10	Avg	Ch. 11	Avg
6		9		9		8	
3	50	4	44.44444	6	66.66667	5	62.5
5	83.33333	4	44.44444	8	88.88889	8	100
2	33.33333	3	33.33333	1	11.11111	3	37.5
4	66.66667	2	22.22222	5	55.55556	4	50

SciQ	Avg	Science Practice	Avg	AP	Avg	Quiz	Avg
1		1		11		14	
0	0	0	0	7	63.63636	8	57.14286
0	0	0	0	8	72.72727	10	71.42857
0	0	1	100	3	27.27273	3	21.42857
0	0	0	0	6	54.54545	5	35.71429

MC		SA	FRQ			Total	
19	52.77778	5	5	50		51.38889	2
27	75	6	7	65		70	4
16	44.44444	3	2	25		34.72222	1
32	88.88889	9	10	95		91.94444	5
25	69.44444	5	5	50		59.72222	3

Data Talk

Mail Merge

- Parent/Student Communication
- Data Analysis Sharing
- Personalized Feedback

Section Breakdown						
	12.1 Avg	12.2 Avg	12.3 Avg	13.2 Avg	13.3 Avg	13.4 Avg
Number of Qs	2	7	1	5	4	1
Student 1	50.0	57.14	0.0	100.0	75.0	100.0
Class Average	51.5	69.7	23.5	65.9	60.3	35.3

Your Score: 70%

Remediation:

- quiz corrections (due by next quiz)

Section Breakdown						
	12.1 Avg	12.2 Avg	12.3 Avg	13.2 Avg	13.3 Avg	13.4 Avg
Number of Qs	2	7	1	5	4	1
Student 2	0.0	57.14	0.0	80.0	75.0	0.0
Class Average	51.5	69.7	23.5	65.9	60.3	35.3

Your Score: 55%

Remediation:

- quiz corrections (due by next quiz)
- choose one of the following:
 - watch a Bozeman/Khan/Crash Course video over topic & write 1-page summary
 - complete remediation work based on weaknesses
 - chapter vocabulary (hand-written, word + definition)

Let's set up a template
for you to use in your
classroom!

Step 1: Open Excel

Start a new “blank workbook”

Excel

Recovered

Excel has recovered files that you might want to keep.

Show Recovered Files

Recent

The screenshot shows the Microsoft Excel Start screen. At the top, there is a search bar for online templates and a list of suggested searches: Business, Personal, Industry, Small Business, Calculator, Finance - Accounting, and Lists. The user's name, Tiffany Jones, and email address, tjones1.rmsst@gmail.com, are displayed in the top right corner, along with a 'Switch account' button. The main area features a grid of template thumbnails. A blue arrow points from the text 'Start a new “blank workbook”' to the 'Blank workbook' thumbnail, which shows a simple grid with columns A, B, and C, and rows 1 through 7. Other templates include 'Take a tour', 'Travel expense calculator', 'Project to do list', 'Inventory list', 'Loan comparison calculator', 'Personal expenses calculator', and 'Family budget (monthly)'. The 'Inventory list' template shows a table with columns for Inventory ID, Name, Description, Unit Price, Quantity on Hand, and Unit Cost. The 'Loan comparison calculator' template shows a table comparing three loan scenarios with columns for Loan Amount, Scenario, Interest Rate, Monthly Payment, and Total Cost. The 'Personal expenses calculator' template shows a bar chart of monthly expenses. The 'Family budget (monthly)' template shows a budget overview with a balance, income, and expense summary, along with a pie chart and a list of budget items.

Step 2: Title Your Columns

Hints:

- Use Names You Understand
- Short hand
- If you want to re-use your file, use generic names

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

	A	B	C	D	E	F	G	H	I	J	K	L
1	Student	Student Name	Student E-mail	Parent #1	Parent #2		Ch. A	Avg Ch. A	Ch. B	Avg Ch. B	Ch. C	Avg Ch. C
2												
3												
4												
5												
6												
7												
8												

A blue arrow points from the bottom right towards the column headers, containing the text: "Generic names creates less work" and "TRUST ME!".

Step 3: Save Your File & Close

Book1 - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW

Save As

OneDrive - Personal Computer

Recent Folders

- RTI F: >> RTI
- F:

Save As

This PC > TJONES 2016 (F:) >

Search TJONES 2016 (F:)

Name	Date modified	Type
AP Biology	7/8/2013 2:45 PM	File folder
AP Resources	1/5/2014 1:27 PM	File folder
Argument	7/21/2014 7:01 PM	File folder
ExamView	8/31/2011 12:30 PM	File folder
Forensics	3/21/2014 12:13 PM	File folder
Grade Report	8/21/2014 9:51 AM	File folder
HHMI Resources	3/27/2014 9:43 AM	File folder
Kerry	4/27/2015 11:38 AM	File folder

File name: Mail Merge

a. Click "File"

b. Click "Save As"

c. Click Location to Save

d. Name File

(I named it Mail Merge for easy locating later)

Step 4: Open New Word Document

Word

Recent

Start a new "blank document"

Search for online templates

Suggested searches: Business Personal Industry Print Design Sets Education Event

Tiffany Jones
tjones1.rmss@gmail.com
Switch account

Blank document

Welcome to Word

Single spaced (blank)

Blog post

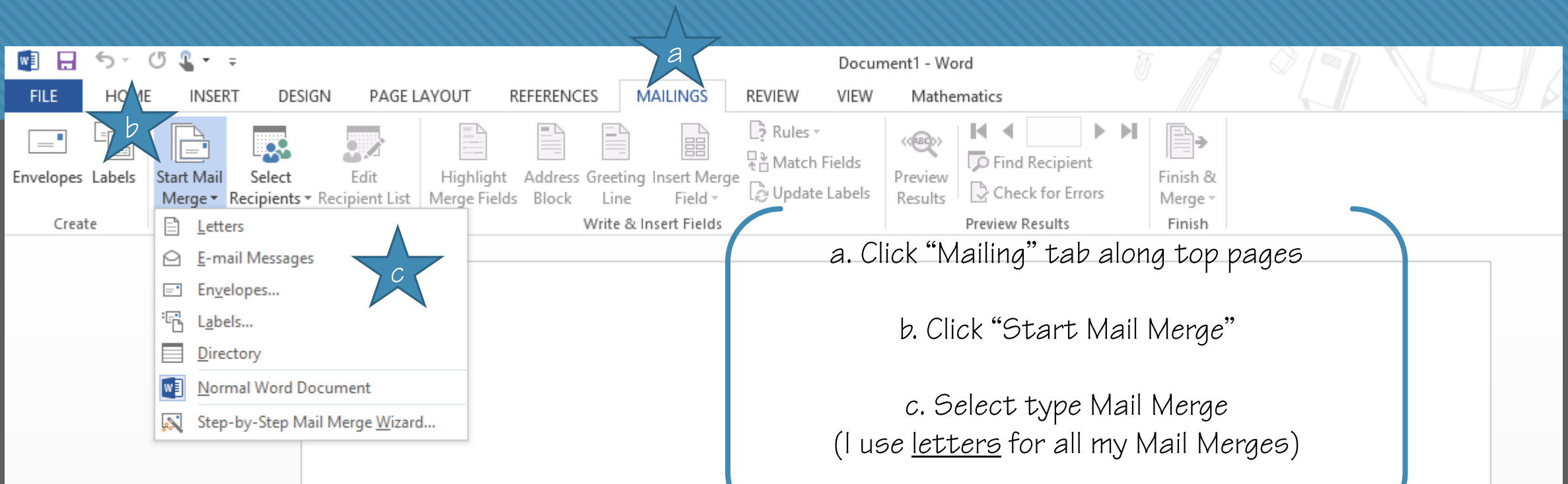
Banded design (blank)

Spec design (blank)

Report design (blank)

Student report with cov...

Step 5: Start Mail Merge



The screenshot shows the Microsoft Word interface with the 'MAILINGS' tab selected. A blue star labeled 'a' is positioned above the 'MAILINGS' tab. A blue star labeled 'b' is positioned above the 'Start Mail Merge' button. A blue star labeled 'c' is positioned above the 'Letters' option in the dropdown menu. A blue bracket on the right side of the image groups the three steps.

a. Click "Mailing" tab along top pages

b. Click "Start Mail Merge"

c. Select type Mail Merge
(I use letters for all my Mail Merges)

Step 6: Select excel file for merge

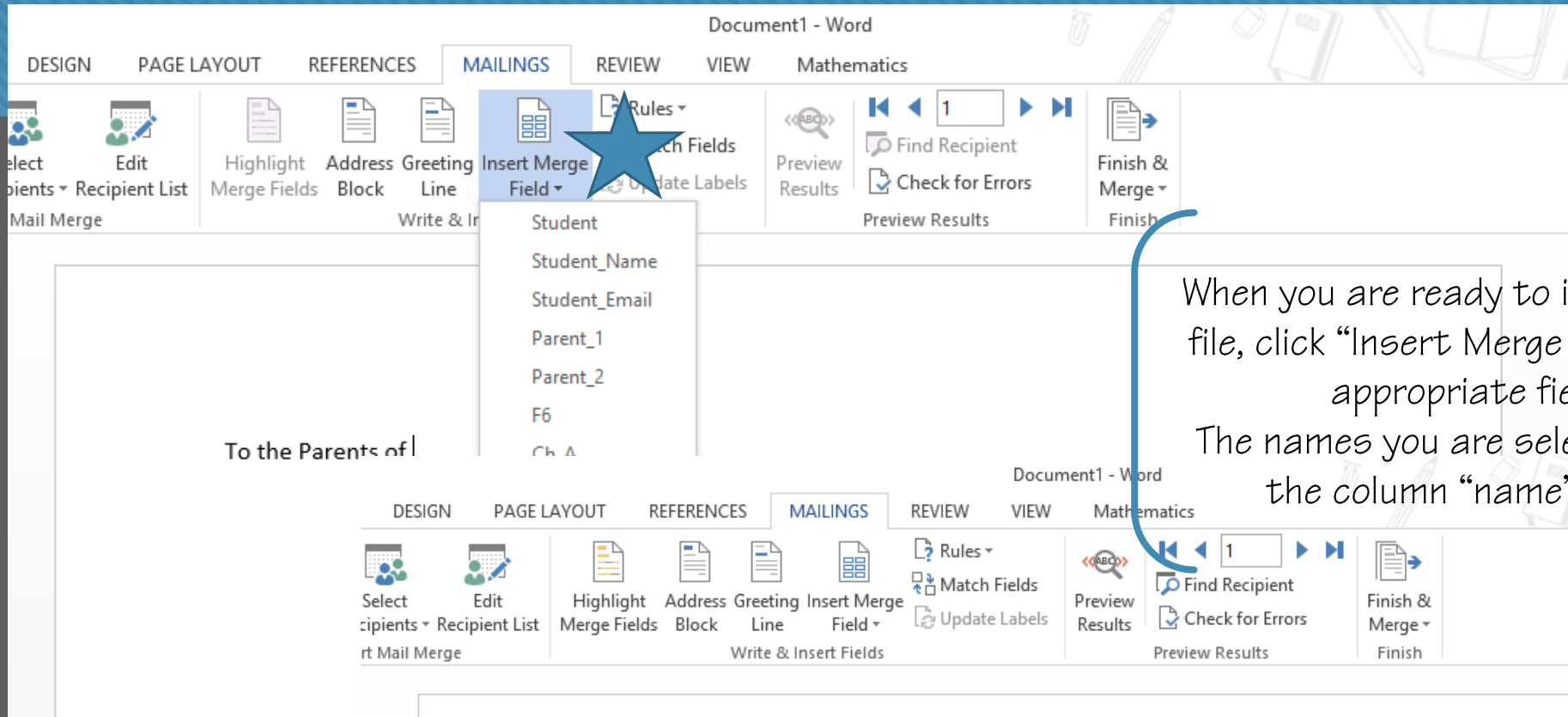
The image shows the 'MAILING' tab in Microsoft Word. The 'Start Mail Merge' group is active, and the 'Select Recipients' dropdown menu is open. A blue star labeled 'a' is placed over the 'Select Recipients' button. The dropdown menu is open, and a blue star labeled 'b' is placed over the 'Use an Existing List...' option. To the right, the 'Select Data Source' dialog box is open, showing a search for 'mail merge' in the 'TJONES 2016 (F:)' folder. A blue star labeled 'c' is placed over the 'Mail Merge' file. Below this, the 'Select Table' dialog box is open, showing a table with one row selected. A blue star labeled 'd' is placed over the 'Sheet1\$' table.

a. Click "Select Recipients"
b. Click "Use an Existing List"
c. Open your Mail Merge document
d. Select the sheet from the Excel file you want to use

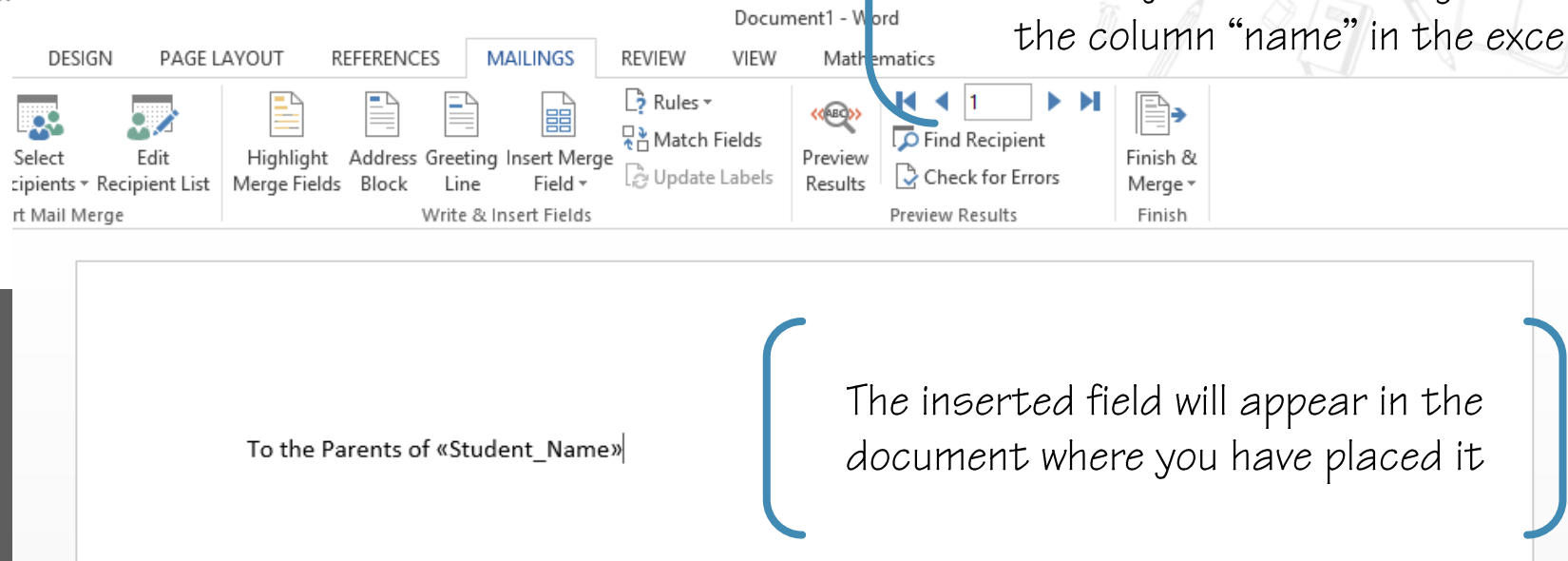
	A	B
1	Student	Student Name
2	John	John Smith
3		
4		
5		
6		
7		
8		

Name	Description	Modified	Created	Type
Sheet1\$		7/12/2016 11:20:13 PM	7/12/2016 11:20:13 PM	TABLE

Step 7: Type your document

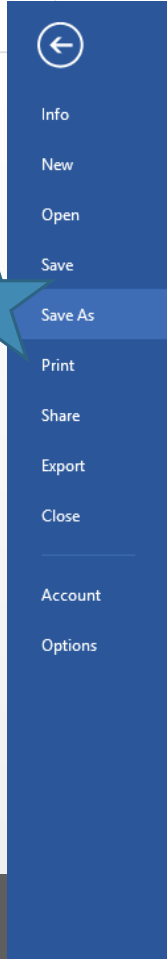
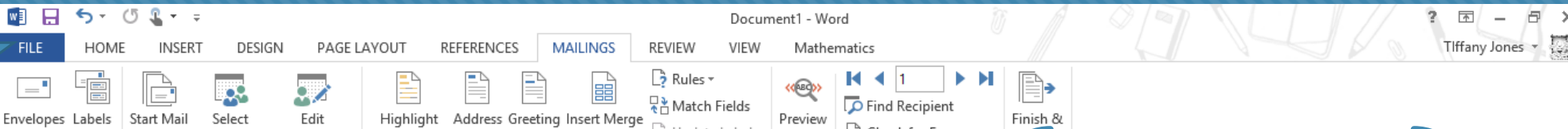


When you are ready to insert from your excel file, click “Insert Merge Field” and select the appropriate field to insert. The names you are selecting correspond to the column “name” in the excel file.

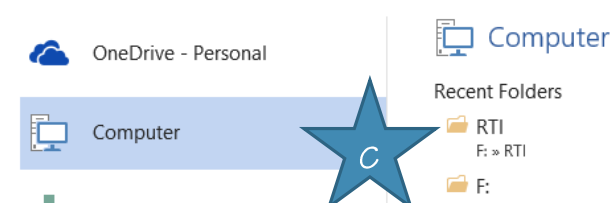


The inserted field will appear in the document where you have placed it

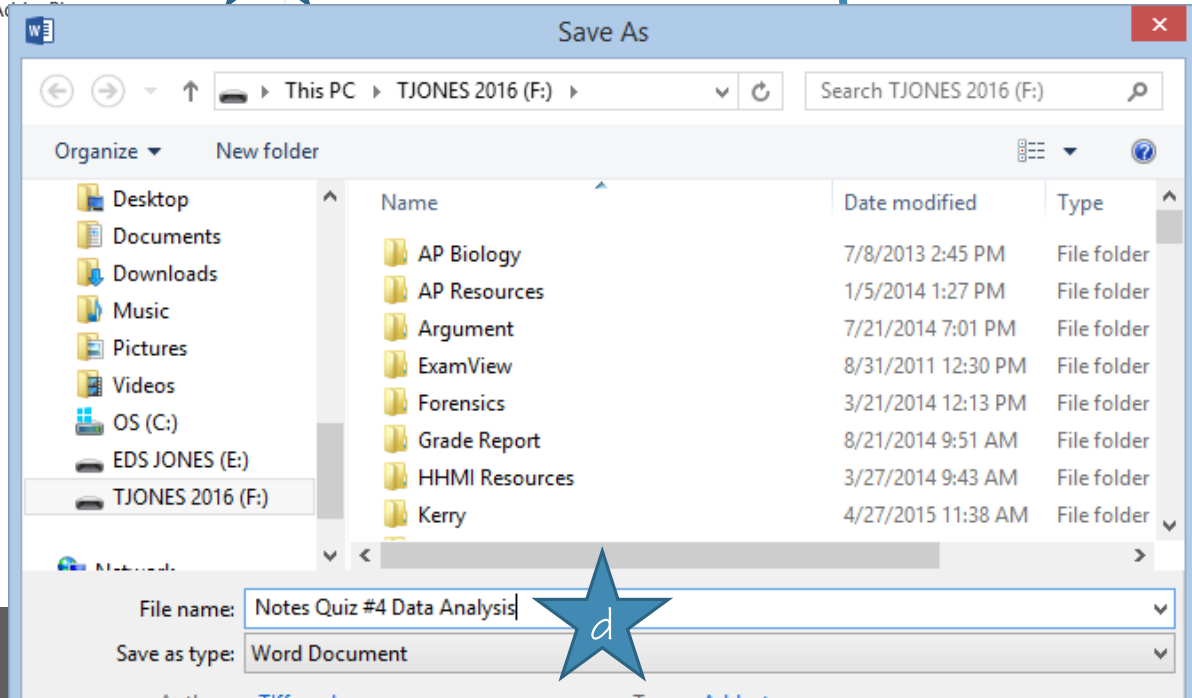
Step 8: Save Document for future



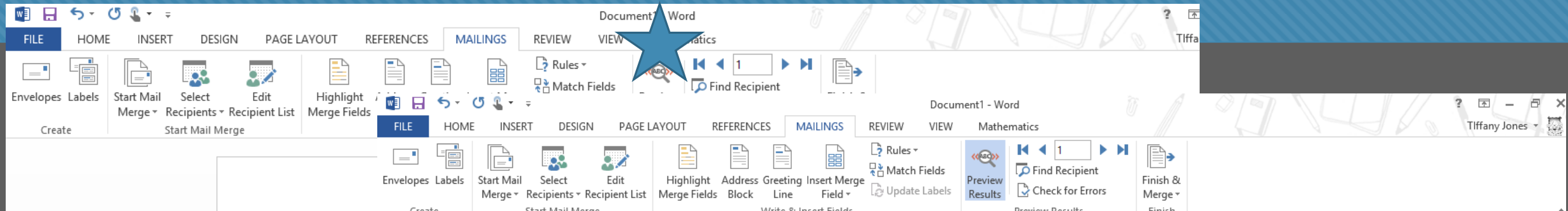
Save As



- a. Click "File"
- b. Click "Save As"
- c. Click Location to Save
- d. Name File



Step 9: Preview document to check for errors



The screenshot shows the Microsoft Word interface with the Mailings tab selected. The 'Preview Results' button is highlighted with a blue star. The document content is visible in the background.

To the Parents of John Smith

It has been a great start to the semester. We have taken our first quiz today and I wanted to share the results from the quiz with you. Below you will find the student's breakdown based on the chapters assessed on the quiz.

	Chapter 4	Ave	Chapter 5	Avg	Chapter 6	Avg
John	3	75	2	50	4	100

Please let me know if you have any questions.

Have a great day,

Mrs. Jones

PAGE 1 OF 1 79 WORDS

Step 10: E-mail or Print Document

To the Parents of «Student_Name»

It has been a great start to the semester. We have taken our first quiz today and I wanted to share the results from the quiz with you. Below you will find the student's breakdown based on the chapters assessed on the quiz.

	Chapter 4	Ave	Chapter 5	<u>Avg</u>	Chapter 6	<u>Avg</u>
«Student»	«Ch_A»	«Avg_Ch_A»	«Ch_B»	«Avg_Ch_B»	«Ch_C»	«Avg_Ch_C»

Please let me know if you have any questions.

Have a great day,

Mrs. Jones

Click "Finish & Merge"
Select option

PRINT: "Print Documents"
E-MAIL: "Send E-mail Messages"

Step 10: E-mail or Print Document

The image shows three overlapping 'Merge to E-mail' dialog boxes. The top-left box is partially obscured. The middle-right box has a dropdown menu open for the 'To:' field, showing a list of email addresses: Student, Student_Name, Student_Email, ent_1, ent_2, _A, and _Ch_A. A blue arrow points to this list with the text 'Select appropriate e-mail location'. The bottom-most box has the 'To:' field set to 'Student_Email', the 'Subject line' set to 'AP Biology Quiz #3 Results', and the 'Mail format' set to 'HTML'. A blue arrow points to the subject line with the text 'Type Subject Line for the e-mail'. At the bottom of this box is an 'OK' button, with a blue arrow pointing to it and the text '“OK” will send the e-mail to all addresses'. The 'Send records' section in the bottom-most box has the 'All' radio button selected.

Message options

To:

Subject line:

Mail format:

Send records

All

Current record

From:

Message options

To:

Subject line:

Mail format:

Send records

All

Current record

From: To:

OK

Message options

To:

Subject line:

Mail format:

Send records

All

Current record

From:

OK




Cancel

Select appropriate e-mail location

Type Subject Line for the e-mail

“OK” will send the e-mail to all addresses

Example of the E-mail Sent

 Reply  Reply All  Forward



Tue 7/12/2016 11:50 PM

Tiffany Jones - Magnet School

AP Biology Quiz #3 Results

To 'parent1john@gmail.com'

To the Parents of John Smith

It has been a great start to the semester. We have taken our first quiz today and I wanted to share the results from the quiz with you. Below you will find the student's breakdown based on the chapters assessed on the quiz.

	Chapter 4	Ave	Chapter 5	Avg	Chapter 6	Avg
John	3	75	2	50	4	100

Please let me know if you have any questions.

Have a great day,

Mrs. Jones



HHMI Population Genetics Activity

Hardy-Weinberg Lab

Quick Tips

Starting
Population

(Parent
Population)

A = red S = white

- 15 individuals that are AA
 - 30 red beads
- 30 individuals that are AS
 - 30 red beads & 30 white beads
- 15 individuals that are SS
 - 30 white beads

Total:

- 60 red beads
- 60 white beads

A = red S = white

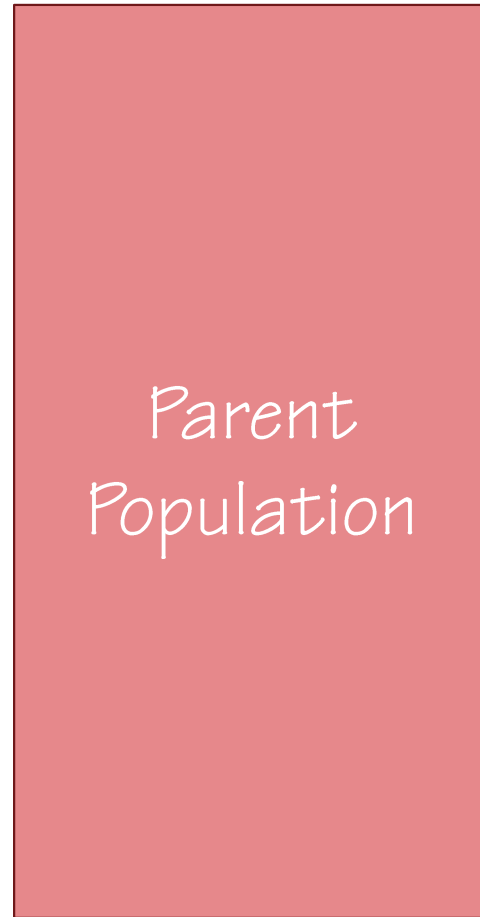
Simulation 1

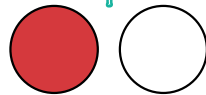
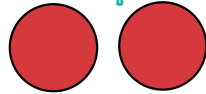
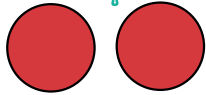
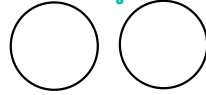

- All offspring will survive
- Draw two beads from the parent population
 - Record these in your chart
 - For example:
 - Two red beads → AA
 - One red and one white bead → AS
 - Two white beads → SS
 - RETURN THESE BEADS TO THE PARENT POPULATION BEFORE DRAWING AGAIN!
- Continue drawing two beads at a time and recording until you have made 60 tally marks (aka 60 offspring)

Example Simulation 1

A = red S = white

AA	
AS	
SS	



- 1st Offspring AS

- 2nd Offspring AA

- 3rd Offspring AA

- 4th Offspring SS

- 5th Offspring AS


A = red S = white

AA	
AS	
SS	

Genotype	Tally Marks for Offspring	Number of Individuals	Total Number of Individuals in the First Offspring Population	Genotype Frequency
AA		2	5	0.4
AS		2	5	0.4
SS		1	5	0.2

AA Genotype Freq
AA / total #
2 / 5
0.4

AS Genotype Freq
AS / total #
2 / 5
0.4

SS Genotype Freq
SS / total #
1 / 5
0.2

Example Math

A = red S = white

AA	
AS	
SS	

Allele	Number of Alleles	Total Number of Alleles in the Offspring Population	Allele Frequency
A	6	10	0.6
S	4	10	0.4

Example Math

$$\begin{aligned} &\text{Number of A Allele} \\ &\#AA \times 2 + \#AS \times 1 \\ &2 \times 2 + 2 \times 1 \\ &4 + 2 \\ &6 \end{aligned}$$

$$\begin{aligned} &\text{Number of S Allele} \\ &\#SS \times 2 + \#AS \times 1 \\ &1 \times 2 + 2 \times 1 \\ &2 + 2 \\ &4 \end{aligned}$$

$$\begin{aligned} &\text{A Allele Freq} \\ &\# A / \text{total } \# \\ &6 / 10 \\ &0.6 \end{aligned}$$

$$\begin{aligned} &\text{S Allele Freq} \\ &\# S / \text{total } \# \\ &4 / 10 \\ &0.4 \end{aligned}$$

Simulation 2

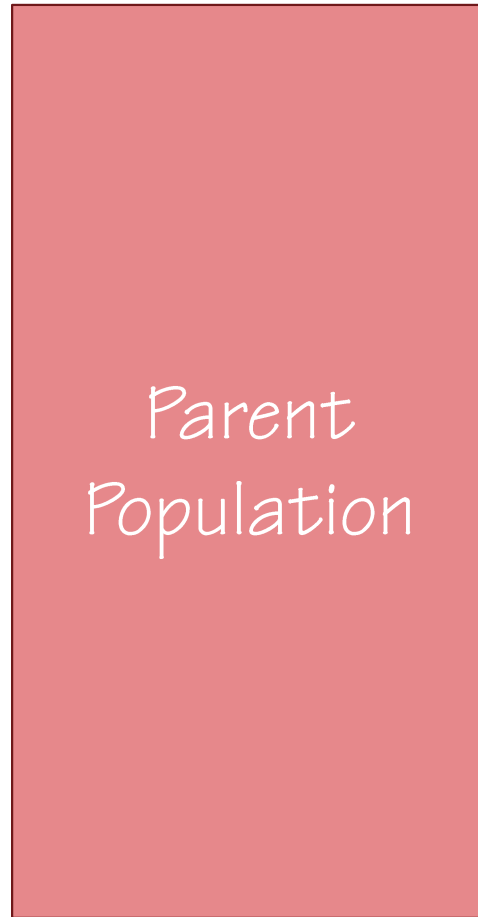
A = red S = white

- Set-Up as Starting Population (60 red, 60 white)
- Assume SS has sickle cell and DIES
 - THERE WILL BE NO SS IN THIS SIMULATION!
- Draw two beads from the parent population
 - Record these in your chart
 - For example:
 - Two red beads → AA
 - One red and one white bead → AS
 - Two white beads → Dead – do not record
 - RETURN THESE BEADS TO THE PARENT POPULATION BEFORE DRAWING AGAIN!
- Continue drawing two beads at a time and recording until you have made 60 tally marks (aka 60 offspring)

Example Simulation 2

A = red S = white

AA	
AS	
SS	☠



- 1st Offspring AA
- 2nd Offspring AS
- 3rd Offspring SS
- 3rd Offspring SS
- 3rd Offspring AS

A = red S = white

AA	
AS	
SS	

Genotype	Tally Marks for Offspring	Number of Individuals	Total Number of Individuals in the First Offspring Population	Genotype Frequency
AA		1	3	0.33
AS		2	3	0.67
SS		0	3	0

AA Genotype Freq
AA / total #
1 / 3
0.33

AS Genotype Freq
AS / total #
2 / 3
0.67

SS Genotype Freq
SS / total #
0 / 3
0

Example Math

A = red S = white

AA	
AS	
SS	

Allele	Number of Alleles	Total Number of Alleles in the Offspring Population	Allele Frequency
A	4	6	0.67
S	2	6	0.33

Example Math

$$\begin{aligned} &\text{Number of A Allele} \\ &\#AA \times 2 + \#AS \times 1 \\ &1 \times 2 + 2 \times 1 \\ &2 + 2 \\ &4 \end{aligned}$$

$$\begin{aligned} &\text{Number of S Allele} \\ &\#SS \times 2 + \#AS \times 1 \\ &0 \times 2 + 2 \times 1 \\ &0 + 2 \\ &2 \end{aligned}$$

$$\begin{aligned} &\text{A Allele Freq} \\ &\# A / \text{total } \# \\ &4 / 6 \\ &0.67 \end{aligned}$$

$$\begin{aligned} &\text{S Allele Freq} \\ &\# S / \text{total } \# \\ &2 / 6 \\ &0.33 \end{aligned}$$

A = red S = white

- Assume SS has sickle cell and DIES
 - THERE WILL BE NO SS IN THIS SIMULATION!

Set-Up Instructions

- Adjust the parent population to match your first generation outcome
 - Example from previous slide:
 - Add 4 red beads
 - Add 2 white beads

Allele	Number of Alleles
A	4
S	2

- Follow the same rules as Simulation 2 First Generation

Simulation 2 Second Generation

Simulation 3

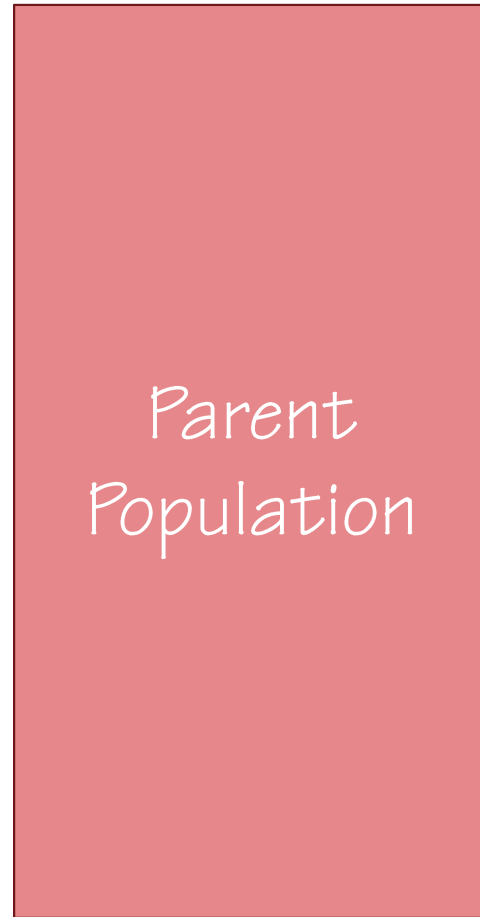
A = red S = white

- Set-Up as Starting Population (60 red, 60 white)
- Assume SS has sickle cell and DIES
 - THERE WILL BE NO SS IN THIS SIMULATION!
- Assume AA can be infected by malaria and DIES HALF of the time
- Draw two beads from the parent population
 - Record these in your chart
 - For example:
 - Two red beads → 50% AA or 50% Dead – do not record dead
 - One red and one white bead → AS
 - Two white beads → Dead – do not record
 - RETURN THESE BEADS TO THE PARENT POPULATION BEFORE DRAWING AGAIN!
- Continue drawing two beads at a time and recording until you have made 60 tally marks (aka 60 offspring)

Example Simulation 3

A = red S = white

AA	
AS	
SS	☠



- 1st Offspring AA
● ●
- 2nd Offspring AS
○ ●
- 3rd Offspring AA
● ●
- 3rd Offspring SS
○ ○
- 3rd Offspring AA
● ●

A = red S = white

AA	
AS	
SS	

Genotype	Tally Marks for Offspring	Number of Individuals	Total Number of Individuals in the First Offspring Population	Genotype Frequency
AA		2	3	0.67
AS		1	3	0.33
SS		0	3	0

AA Genotype Freq
AA / total #
2 / 3
0.67

AS Genotype Freq
AS / total #
1 / 3
0.33

SS Genotype Freq
SS / total #
0 / 3
0

Example Math

A = red S = white

AA	
AS	
SS	

Allele	Number of Alleles	Total Number of Alleles in the Offspring Population	Allele Frequency
A	5	6	0.83
S	1	6	0.17

Example Math

$$\begin{aligned} &\text{Number of A Allele} \\ &\#AA \times 2 + \#AS \times 1 \\ &2 \times 2 + 1 \times 1 \\ &4 + 1 \\ &5 \end{aligned}$$

$$\begin{aligned} &\text{Number of S Allele} \\ &\#SS \times 2 + \#AS \times 1 \\ &0 \times 2 + 1 \times 1 \\ &0 + 1 \\ &1 \end{aligned}$$

$$\begin{aligned} &\text{A Allele Freq} \\ &\# A / \text{total} \# \\ &5 / 6 \\ &0.83 \end{aligned}$$

$$\begin{aligned} &\text{S Allele Freq} \\ &\# S / \text{total} \# \\ &1 / 6 \\ &0.17 \end{aligned}$$

A = red S = white

Simulation 3 Second Generation

- Assume SS has sickle cell and DIES
 - THERE WILL BE NO SS IN THIS SIMULATION!
- Assume AA can be infected by malaria and DIES HALF of the time

Set-Up Instructions

- Adjust the parent population to match your first generation outcome
 - Example from previous slide:
 - Add 5 red beads
 - Add 1 white beads

Allele	Number of Alleles
A	5
S	1

- Follow the same rules as Simulation 3 First Generation

HHMI Prizes & Goodie Bags

Strategies from my Classroom

AP Review Notebook

- Practice Questions/Exams
- Review Books
- Videos/Animations
- Inquiry/Applications



AP Biology AP Exam Review Notebook



Assigned: 2/13

Due: 5/8 @ 3:15PM

You will be compiling a review notebook to assist you to prepare for the Ga Milestone (5/1 & 5/2) and AP Exam (5/8). This assignment will be an exam grade (250 points). The following are the items that are to be completed and placed into your review notebook. It would be a WISE decision to include your Race to the Slopes quizzes for extra review questions. Extra credit may be given for completion of extra items. This is a long term assignment & NO LATE SUBMISSIONS will be accepted under any circumstance! The notebook is due on **Monday, May 8, 2016 by 3:15pm** to Mrs. Jones' classroom.

✓	Dates	Items to be Completed
	3/1	Diagnostic Test – Barron's PreTest (AP) – itsLearning (A)
	3/3	Diagnostic Test - PreTest (Ga Milestone) – USATestPrep (B)
	3/8	CHECKPOINT (40 POINTS)
	3/10	Lowest EOCT Section (90% mastery) – USATestPrep (D)
	3/13	Complete 1 Barron's Practice Test (C)
	3/17	Second Lowest EOCT Section (90% mastery) – USATestPrep (D)
	3/24	Middle EOCT Section (90% mastery) – USATestPrep (D)
	3/27	Complete released exam – itsLearning (E)
	3/31	CHECKPOINT (120 POINTS)
	4/10	Complete 1 Barron's Practice Test (C)
	4/14	Second Highest EOCT Section (90% mastery) – USATestPrep (D)
	4/17	Laboratory Review/Science Practices – 6 videos (H & I)
	4/21	Highest EOCT Section (90% mastery) – USATestPrep (D)
	4/22	AP Biology Practice Exam (student choice) (F)
	4/24	Complete released exam – itsLearning (E)
	4/28	CHECKPOINT (200 POINTS)
	4/30	Full-Length Practice Ga Milestone Exam – USATestPrep (G)
	5/8	Completed Notebook due to Mrs. Jones's room by 3:15 pm 250 POINTS GOING IN GRADEBOOK

* additional points are either Barron Review Sections or student choice point assignments (see the student choice list)

Questions?



Contact Information

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- Twitter: [tjones1rmsst](https://twitter.com/tjones1rmsst)
- Instagram: [tjones1.rmsst](https://www.instagram.com/tjones1.rmsst)



Evaluation and Dismissal

Please complete the following evaluation

<http://bit.ly/2kjV50A>

Thank you!