Technology Equity: Students as Video Producers to Improve Science Comprehension and Literacy.

Alicia Johal, 2017

TRANSPARENCY

RELATIONSHIPS

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WELCOME TO
8TH GRADE SCIENCE
with Ms. Johal

1. Sit in an open seat in the circle
2. Put on a lab coat
3. Place your backpack behind your chair
4. Wait quietly for Ms. Johal's directions

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PERSONALITY BEAKERS

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MAKE THE CLASSROOM FEEL LIKE IT IS THEIRS. BECAUSE IT IS.

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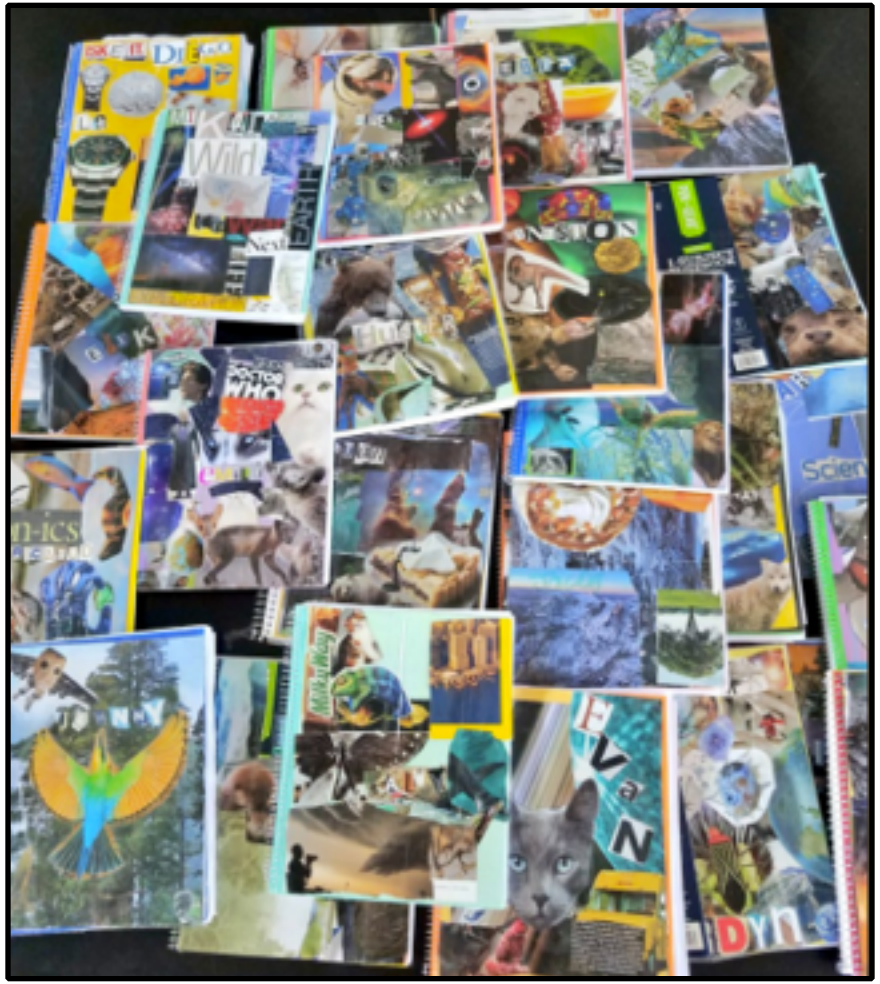

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TRANSPARENCY

RELATIONSHIPS

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ZOOM IN.

WHAT QUESTIONS ARE YOU TRYING TO ANSWER, AS AN EDUCATOR? WHERE ARE YOU STUCK?

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What tools can I use in the classroom to have students explain their learning through critical thinking and **speaking**, but then take those explanations to promote effective **conversation** in their scientific **writing**?

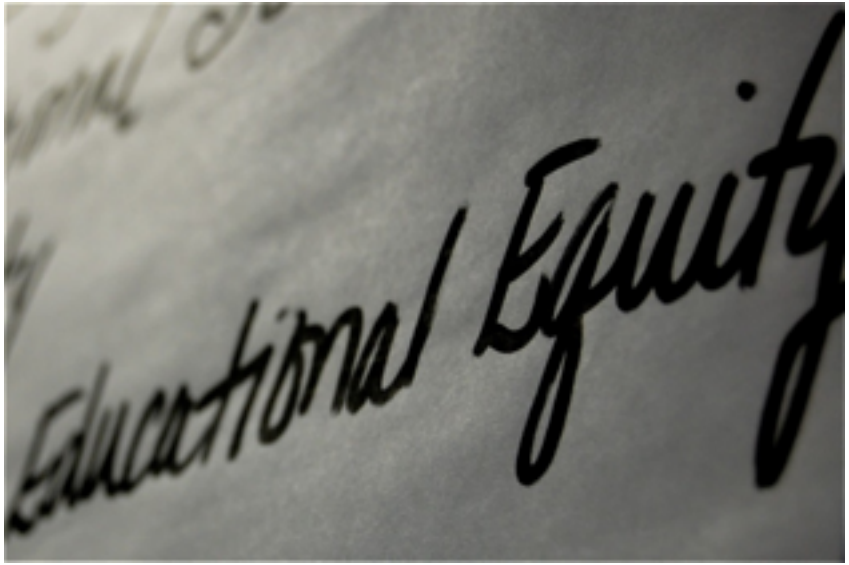
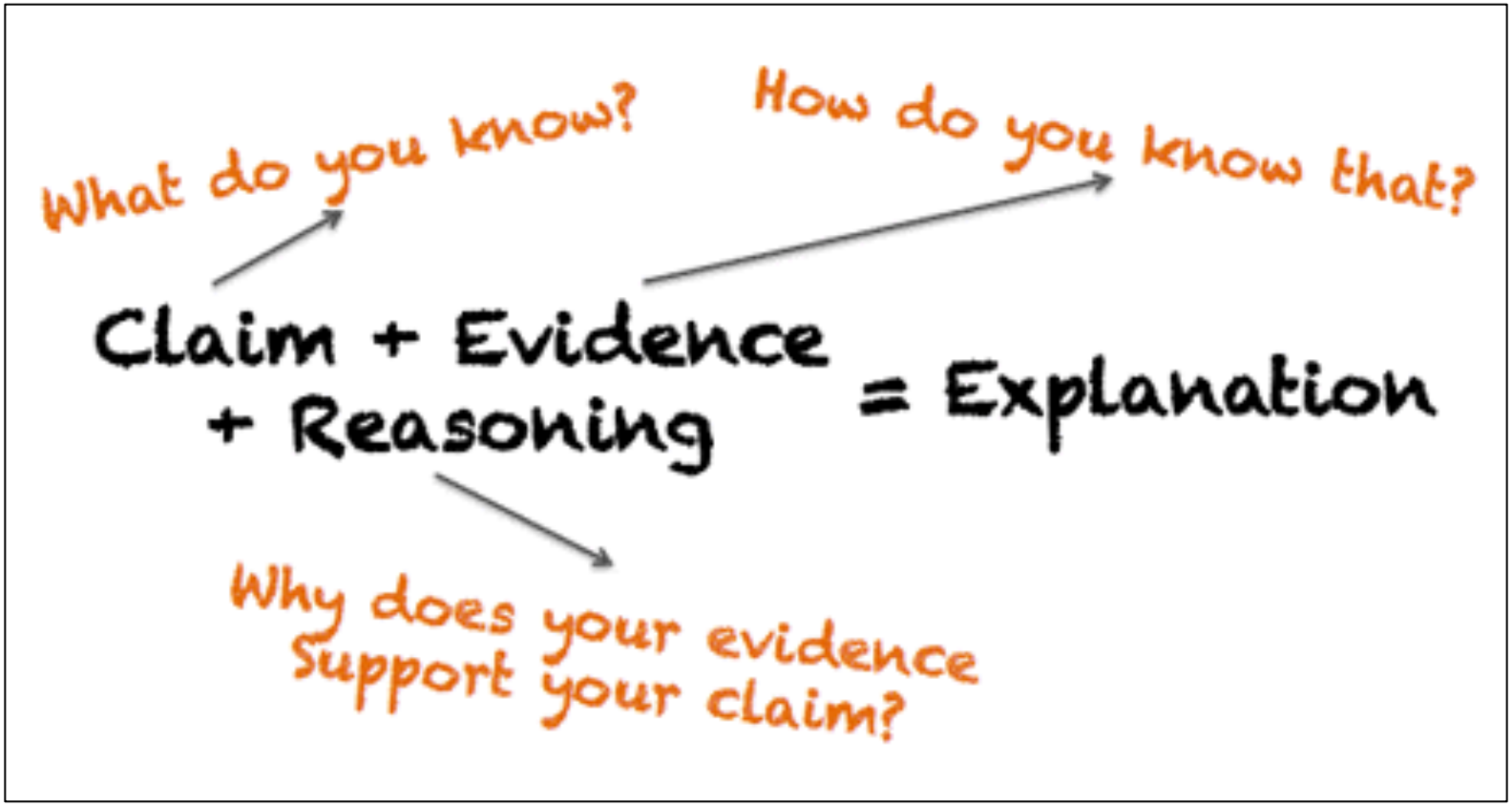


Image Source: https://theartofchildhood.wordpress.com/tag/education/



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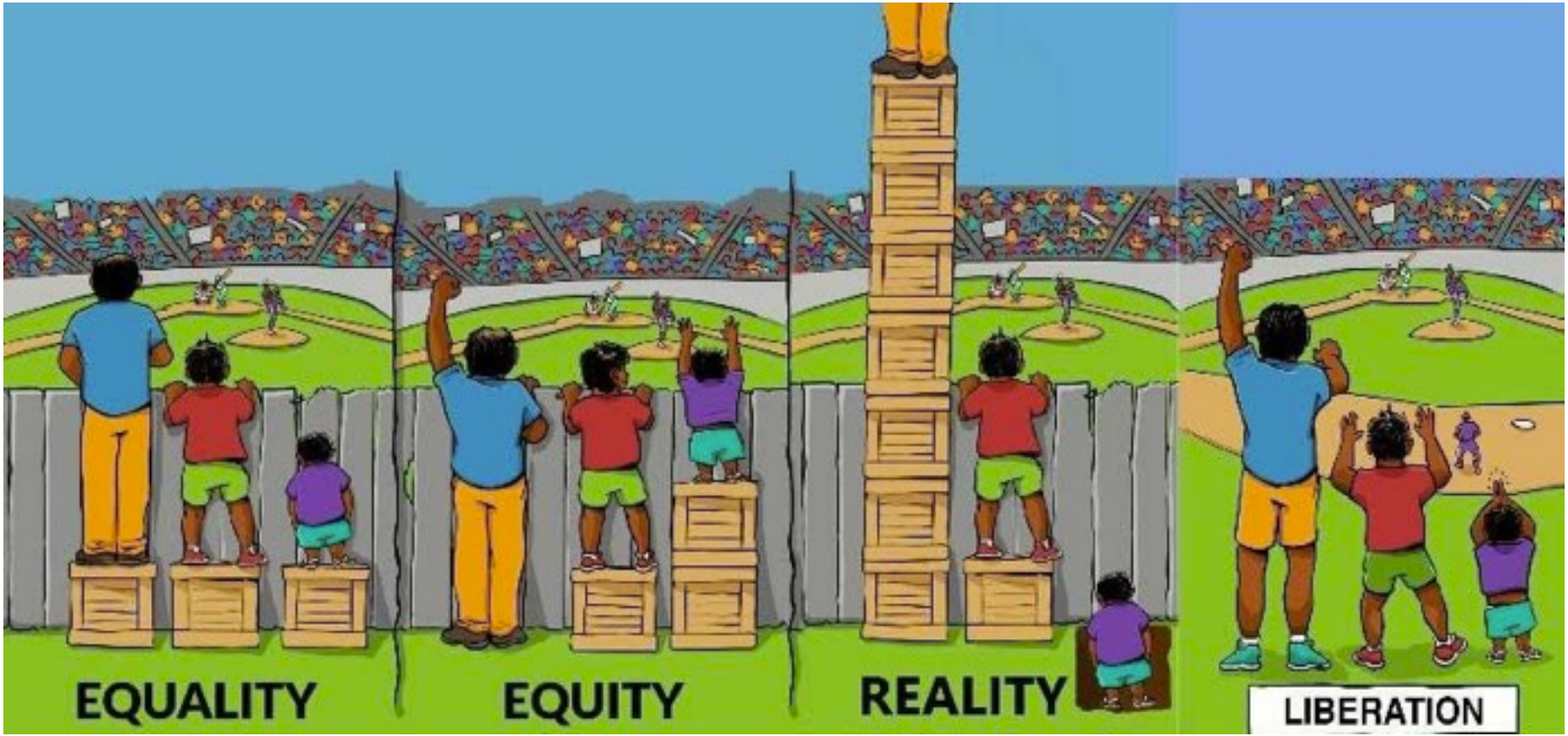

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Focus Group: Long Term English Language Learners

What I did: Used a series of paired projects in which students both produce a multimedia project and a written transcription of the project, to discover if the project increases students' ability to produce written products that have the 3 elements of a scientific explanation.

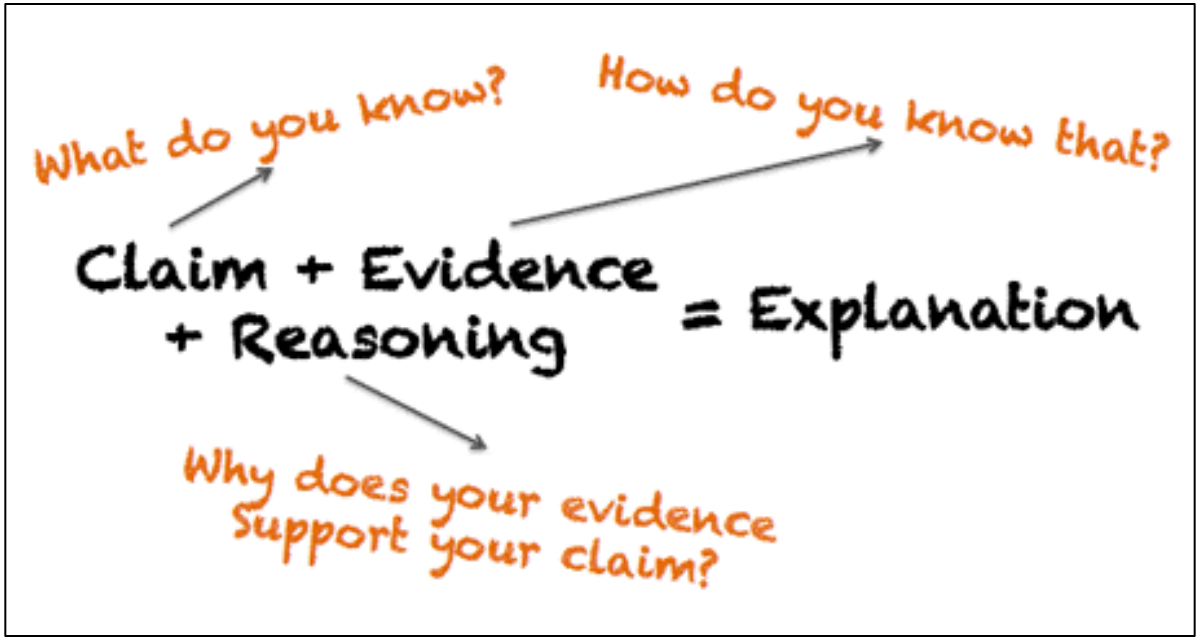

Image Source: http://www.edutopia.org/blog/science-inquiry-claim-evidence-reasoning-eric-brunsell

Student Writing Sample

Lab Reports in September.
Scaffolding —> NEEDED.

1the process of selective breeding is when you mix two organisms and it becomes a super organisms

2I think humans should do selective breeding because will cut have better animals

3One example of selective breeding is good because will cut have better stavs

4The process of genetic engineering is wen the put sciens

5i think scientist and doctors do genetic engineering because will cut have better stabs like meet eggs and more

6one example of genetic engineering is it wen the put sciens on animals or fruit

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Student Writing Sample

Lab Reports in January.
Scaffolding —> STILL NEEDED.

Potential Energy Investigation

Slot number 1 the marble is inside the launcher in the inside of the marble launcher there is thing called a spring when I pull the sliver lever the spring makes compression, the slot number is on number 1 when I pull the sliver lever the it doesn't have that much of potential energy when I let it go the kinetic energy would not have that much of mass.

Slot number 3 the marble is still inside the launcher and it still has the spring but this time when I pull the sliver lever it would be heavier and the spring still would make that compression the slot number is on number 3 when I pull the sliver lever it would have not that much but it would have more potential energy then slot number 1 when I let it go the kinetic energy will increase and it would have more mass.

Slot number 5 still has the marble inside the marble launcher and it still has the spring but this time the sliver lever would be different when I pull it because it would be more heavier and the spring would still do his job it would make that compression the slot number is on number 3 when I pull the sliver lever it would have more potential energy then slot number 1 and slot number 3 when I let go of the sliver lever the kinetic energy would have increase and it will have more mass then before.

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What can my students currently do in science? Where are they stuck?

- Students can recite facts out loud/to peers or teacher.
- Students can write an if/then hypothesis statements.
- Students can explain science activities verbally, very well.
- Students can make claims, about anything.
- **Students were falling short in their 'evidence' and 'reasoning' statements in their scientific writing.**
- **Students were not authentically using scientific vocabulary in their writing.**

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It **IS** a victory to have more speaking from English Language Learners, but that *isn't enough*.

We want reasoning skills! How can technology help to facilitate this process?

EXPLAIN EVERYTHING

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ACTION RESEARCH TIMELINE

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Phase I (February)	Phase II (April)
1. Student explores lab/experiment 2. Student reviews guiding questions to be answered 3. Student creates Explain Everything video 4. Student records voice-over explanation after video is made 5. Student transcribes their recording	I provided students with a rubric for successful scientific explanation.
Conclusion: **Students spoke a lot more.**	**Conclusion:** **Scientific explanations improved.**

Use these two phases to frame your two video projects. Provide rubrics.

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LAB REPORT TEMPLATE

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INVESTIGATING KINETIC ENERGY WITH CARS

MS-PS3-1: Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

Essential Question:

Procedure:
-
-
-
-
-
-

Materials:
-
-
-
-
-
-

Hypothesis:
If...
Then...
Because...

Data Table A.

	Distance traveled on the track (d) *(centimeters)*	Time (t) *(seconds)*	Average Time (t) *(seconds)*	Average Velocity (v) d/t = v *(meters/second)*
Car A 1 Marble				
Car A 1 Marble				
Car A 1 Marble				
Car B 3 Marbles				
Car B 3 Marbles				
Car B 3 Marbles				

VELOCITY is another word for SPEED.

Averages are calculated by adding the numbers together, then dividing by how many numbers you added.

Hint:
- Velocity is distance divided by time.
- Make sure you use the average time.

Measure the distance with a ruler

Measure time with your iPad.

Check-in
Which car traveled faster?

$$KE = (0.5) \cdot m \cdot v^2$$

Data Table B.

	Car Mass (m) *(Kilograms)*	Average Velocity (v) *You calculated this already in Data Table A*	Average Kinetic Energy $KE = (0.5) \cdot m \cdot v^2$ *(Joules)*
Car A: 1 Marble			
Car B: 3 Marbles			

Check-in
Which car has a greater mass?

Which car had a faster velocity (or speed)?

Which car had more kinetic energy?

Apply
Which vehicle has more kinetic energy? Why?

Which vehicle has more kinetic energy? Why?

RUBRICS

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Explain Everything Experiment Results

Instead of writing a lab report you are going to create an **Explain Everything video** to explain what you discovered during your investigation. Below is a list of questions you need to answer and everything that you need to include in your video. Before you get started please read through this list and the rubric. You will grade yourself **before** Ms. Johal grades you.

Topic	Questions to answer in the video.	Include...
Question	• What question are we trying to answer? • What is the essential question that goes with this experiment?	• Images of the TWO cars.
Hypothesis	• What is your hypothesis?	• Your written hypothesis
Procedure	• What steps did I take during this experiment?	• Explain each step of the investigation that you did. Add images that help explain each step.
Data	• What data did you collect? • How did you calculate velocity? • How did you calculate kinetic energy?	• Include pictures of data tables • Explain the data tables and how you filled them in.
Results	• What did you find out? • Which car had more kinetic energy? Why?	• Explain your results - Write them out!
Hypothesis	• Was your hypothesis correct? Why or why not?	• Use results to prove your hypothesis was correct or not.
Concepts	• How does the mass of an object effect the amount of kinetic energy it has? • How does the velocity of an object effect the amount of kinetic energy it has?	• Use the experiment to explain each question. • Give another example to explain how mass and speed effect kinetic energy.

Video Rubric

- Make sure you use this rubric. If you do not get Meets Expectations or Exceeds Expectations you will need to go back and fix what you were missing or improve what you have done.

	Exceeds Expectations (4)	Meets Expectations (3)	Needs Improvement (2)	Unsatisfactory (1)
Questions Hypothesis Procedure	Clearly and Concisely explains the answers to ALL the questions.	Clearly explains the answers to MOST of the questions with FEW mistakes.	Explains the answers to SOME of the questions, with SEVERAL mistakes.	Explains the answers to FEW of the questions, with SEVERAL mistakes.
Data tables and explanation of calculations	Clearly and Concisely explains the data tables and how the calculations were completed with NO mistakes.	Clearly explains the data tables and how the calculations were completed with FEW mistakes.	Explains the data tables and how the calculations were completed with SEVERAL mistakes.	Explains the data tables and how the calculations were completed UNCLEARLY with MANY mistakes.
Relationship between mass and kinetic energy	Clearly and Concisely explains the relationship between the mass of an object and its kinetic energy with NO mistakes. INCLUDES an example to help explain.	Clearly explains the relationship between the mass of an object and its kinetic energy with FEW mistakes. INCLUDES an example to help explain.	Explains the relationship between the mass of an object and its kinetic energy with SEVERAL mistakes. NO example to help explain.	Explains the relationship between the mass of an object and its kinetic energy UNCLEARLY with MANY mistakes. NO example to help explain.
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Video Quality	Video shows A LOT of EFFORT and attention to detail. Video includes images and videos that help explain the experiment.	Video shows EFFORT and attention to detail. Video includes images that help explain the experiment.	Video shows SOME EFFORT and attention to detail. Video includes images.	Video shows LITTLE EFFORT. Images are missing.

Student Name: _____

I have put honest **time** and **effort** into my project. I used this rubric as a guide and have **graded** my own Explain Everything lab report.

Final Grade (Ms. Johal) : _____ / 20 points

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POST-LAB

POST-VIDEO #1

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Data Collection

What part of your first/second video were you the most proud of?
What could you have done better for your first video?
By creating my video, it improved how I understood the topic…
How many times did you record your voice?
How many times did you listen to your voice to write your transcription?
After making my video, my writing has….
After completing my video, my speaking skills have…
I understand the vocabulary words better since creating….
After completing my video, I feel more comfortable…

Use Google Forms to create your survey!

Alicia Johal, 2017

Video #1 Survey

- Students were most proud of making a video (creating slides, inserting pictures and video clips)
- Students could have done better speaking louder, not whispering

- By creating my first video, it improved how I understood the topic:
  31% Yes, it helped very much
  55% Yes, it helped me understand a little bit more
  13.8% I think I understood the topic without having to make the video
- How many times did you record your voice? Range: 1-14 times

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Video #1 Survey

- "After completing my first video, I feel more comfortable writing and speaking"
- "The part that I was the most proud of was that I think I improved on the writing and on vocabulary"
- "I was most proud when I was talking on the recording thing"
- "I think I was most proud about getting on the video for the first time making something I have never done before"
- **"The part that I was proud of was the recording part because I'm a little bit shy speaking English"**

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POST-LAB

POST-VIDEO #2

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Video #2 Survey

- Students were most proud of their conclusions
- Students could have done better speaking louder and "better"

- By creating my first video, it improved how I understood the topic:
  55% Yes, it helped very much
  14% Yes, it helped me understand a little bit more
  14.8% I think I understood the topic without having to make the video

- How many times did you record your voice? **Range: 3-7 times**

- After making my second video I think my writing has improved:
  68% Students agreed
  32% Stayed the same

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Video #2 Survey

- "After completing my second video I started understanding more"
- "The second video I made was better than the first because on the second one I did much better on writing and on the first one I made some mistakes"
- **"I was proud of the conclusion I thought more an was explaining more"**
- "I was the most proud of the conclusion because it was the longest and hardest thing in the video"
- **"The second video was different. In the first video I just said everything that I wrote"**

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IMPROVEMENTS IN WRITING?

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What did the student-written conclusions show in the 2nd video?

- Students were speaking more and therefore writing more in their transcriptions.
- Students were reading verbatim less, and explaining more.
- Students were provided sentence starters in both assignments, but were using the sentence starters more coherently in the 2nd video.
- Students were using pieces of evidence more clearly in their writing.
- Students were making shorter, more concise claims.
- **Students still struggling with the reasoning portion.**

WRITING SAMPLES

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Potential energy is the energy is stored energy that is not moving yet. potential energy is stored energy about to be released in a cliff or in a roller coaster. When You go up a roller coaster you feel chills that's potential energy stored.potential Energy depends on mass,height,compression. For example a slingshot you pull The rubber band put a little pebble and release and it will shot the pebble.

Long term English Language Learners in my classroom were really good at stating vocabulary (because they knew it was important) BUT that was not enough - they were not showing true comprehension of the scientific terms in their explanations.

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Now students are linking the results of an experiment to their hypothesis, and explaining WHY.

The question investigation in this experimnt was it will make it hard to move it and we have to apply more force to it. And it was also hypothesized tha if we pull the spring scales the textbook will start to move are going to put forces the spring scale until the textbook moves. The result of the experiment proved that the hypothesized was correct because if we put this stping scales until it moves the textbooks will have more mass it has the more forces we apply. In conclusioon the prokect wa sabout the newtons neede dto mvoe textbooks and what were the mateirals to move it and how many mass the textbooks had and how many newtons required to move it.

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Student writing in August

1.what we learn from the battle of beaks was that there were different beaks .
2. What we saw that there were different types of mole
3.natural selection is when they adapt , survive, and reproduce . Its also when they pass on traits .

This has opened a portal to a running scientific explanation. The example on the right seems less "skilled" in its English use. But the example on the left is choppy and actually LESS scientific. Student on the right considers issues of hypothesizing, proof, evidence, etc.

Student writing in April

The quesiton investigated in this experiment was how does the mass of an object affects the force to move it. It was hypothezised that if we pull the book with the sprin scale it will check how much force did it take to move it because when we pull the sprin scale it checks how much does it weigh. The results of the expeiremnt proved that the hypothesis was that the more mass you have the more force you need to pull the object when I only use one book the newtons that it came out was 4 newtons then when I use 2 books the newtons that came out was 8 newtons then when I use to 3 books the newtons that came out was 10. This shows force netwons and mass and weight to chekc how much are the newtons.

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RESULTS AND NEXT STEPS

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Results...

- Students were able to connect with a hypothesis
- Students were able to link evidence to a sentence/claim
- Students need more practice with reasoning

Next steps with less scaffolds,...

- Students edit their transcription
- Students write a formal lab report without video
- Students write first, and then complete a voice over
- Students listen to each others videos and transcribe

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ACTION RESEARCH TIMELINE

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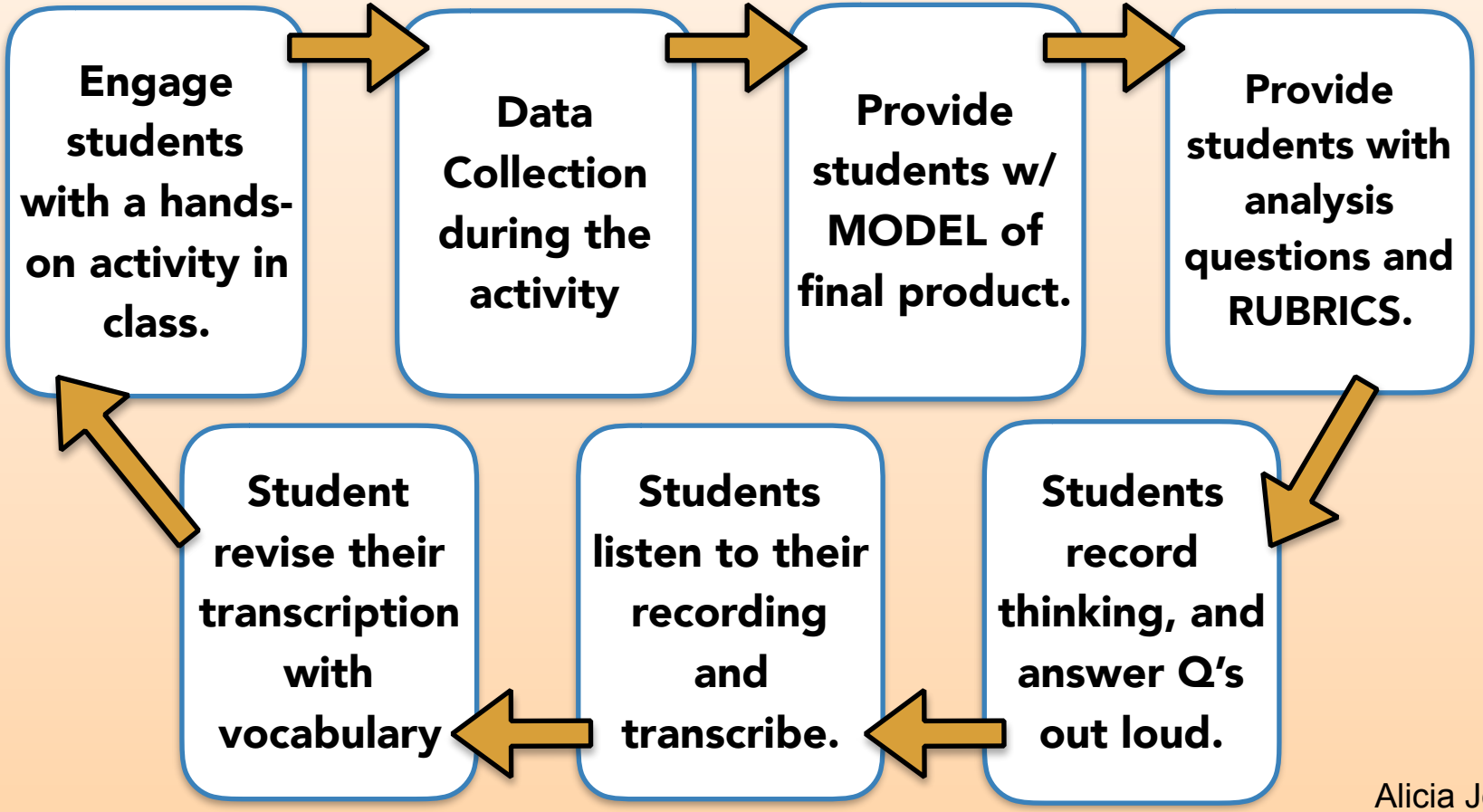
How do you replicate this process in your classroom?



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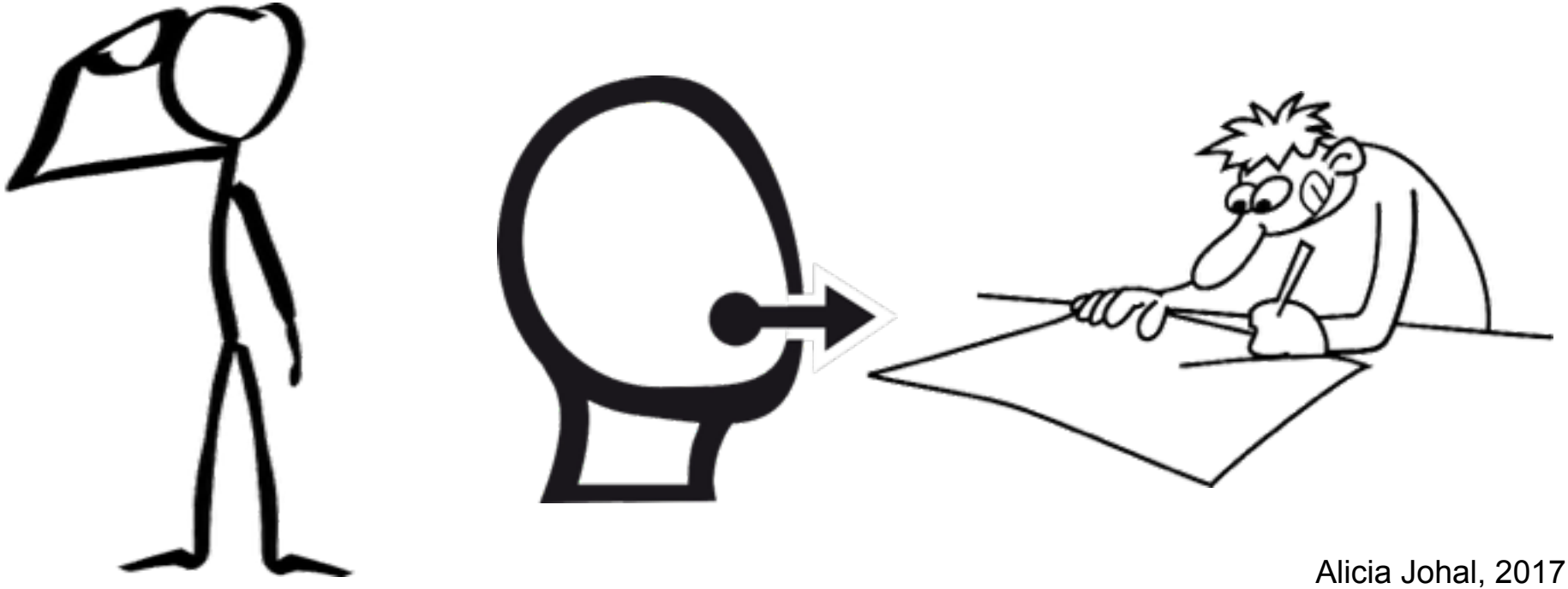
We can get **more** from students who *struggle to articulate* their understanding — by allowing them to speak coherently about their understanding of science, and *then* write.



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TRANSPARENCY

RELATIONSHIPS

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ZOOM OUT.

DO YOUR STUDENTS KNOW WHAT THEY ARE DOING? AND WHY? AND HOW?

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What am I learning today?

I am learning about the physical similarities and differences between the Hominid skulls.

Why am I learning this?

I am learning about Hominid skulls because they can provide evidence for evolution.

How will I know that I have learned it and succeeded?

I will know that I have succeeded when I can compare/contrast a modern and fossil organism and explain their relationship to a common ancestor.

What am I learning today?

I am learning about hurricanes and how they form.

Why am I learning this?

I am learning about hurricanes to understand the destruction they cause, and how relief efforts occur.

How will I know I have succeeded?

I will have succeeded when I have designed a Landing Capsule to transport first aid and supplies to Hurricane Harvey flood victims.

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I can tell them what and why they are learning something...

But, how do I tell them how to get there?

Isn't it a secret?

RUBRICS TELL STUDENTS HOW TO SUCCEED.

TEACHERS SUPPORT EACH STUDENT IN GETTING THERE.

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RUBRICS

- To start the assignment
- To check off during the assignment
- To grade after the assignment
- To peer grade and give feedback
- To go back and use when making corrections

Explain Everything Rubric for Kinetic Energy Video

	Exceeds Expectations (4)	Meets Expectations (3)	Needs Improvement (2)	Unsatisfactory (1)
Questions Hypothesis Procedure	Clearly and Concisely explains the answers to ALL the questions.	Clearly explains the answers to MOST of the questions with FEW mistakes.	Explains the answers to SOME of the questions, with SEVERAL mistakes.	Explains the answers to FEW of the questions, with SEVERAL mistakes.
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Explain Everything Rubric for [Astronomy Video]

Explain Everything Video Project: Astronomy

By creating this video project, you will demonstrate your understanding of our solar system and the universe. We covered many topics in detail and now it is your turn to show the world what you know! Please see the guidelines below for your project.

Each slide must have:

- 1 question from below
- 3 answers (sentence starters)
- 1 picture (Internet or drawn)
- Caption for the picture

Your video must also include:

- A voice over (recording) on **each** slide
- Astronomy poem (min. 5 rhyme lines)
- Title page (name, period, images)

Questions	Sentence Starters (Optional)
How do scientists classify and sort the planets in our solar system?	1. The solar system can be sorted into two categories, ____A_____ and _____B_____. 2. For category A, I grouped the planets together because... 3. For category B, I grouped the planets together because...
Why are there moon phases and why are they different each night?	1. The reason we have moon phases is because... 2. The four main moon phases are... 3. Illumination means....
What are solar and lunar eclipses and how do they occur?	1. A solar eclipse is when... 2. A lunar eclipse can be described by... 3. A lunar eclipse is different from a solar eclipse because...
What do scale models tell us about the solar system?	1. The scale model of the solar system shows us that... 2. The inner planets are _____ and are made of _____. 3. The outer planets are _____ and are made of _____.
How does gravity effect Earth, and on other planets?	1. What I know about gravity is... 2. An example of gravity is... 3. Gravity on each planet is..... because....

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Explain Everything Rubric for Astronomy Video

Explain Everything Video Project Rubric

	4	3	2	1
Comprehension	Student uses comprehension and understanding to answer each question with 3 or more sentences.	Student describes each question and its scientific topics well in 2 sentences, may include minor mistakes.	Student summarizes scientific topics in 1 sentence, missing important information and data.	Student does not answer the questions on each slide.
Picture & Caption	Student includes pictures and detailed captions on all 5 slides and title page.	Student includes pictures and captions on 3 or 4 slides.	Student includes pictures and captions on 2 slides.	Student did not include pictures or captions on slides.
Voice Over	Student speaks in a clear, audible voice on every slide and includes additional information.	Student reads the content of each slide in the video.	Student has partially recorded the voice over for the video.	Student did not record voice for the video.
Poem	Student writes a minimum 5 line astronomy poem that rhymes.	Student writes a 4 line astronomy poem that rhymes.	Student writes poem in 3 or fewer sentences, it may or may not rhyme.	Student did not include a poem in the video.
Creativity	Student created a dynamic, engaging, colorful, and informative video.	Student created an engaging and informative video.	Student created video but is lacking creativity and originality.	Student did not finish or complete the entire video.

Self Grade _____/20

Peer Grade _____/20

Teacher Grade: _____/20

Student Name: _____

Alicia Johal, 2017

Explain Everything Rubric for Light Waves Video

LIGHT WAVES EXPLAIN EVERYTHING RUBRIC

	4	3	2	1
Refract	Student describes refract in a way that is easy to understand and includes connection to what was learned in class and uses one or more images.	Student describes refraction but there are minor errors in content	Student has major errors in content knowledge of refraction and the medium used; comprehension is unclear.	The slide is incomplete - student is lacking explanation, picture, or narration.
Transmit & Absorb	Student describes the difference between a photon being transmitted and absorbed, and uses 2 or more images.	Student minor errors in content or it is not easy to understand.	Major errors in content knowledge, comprehension is unclear.	The slide is incomplete - student is lacking explanation, picture, or narration.
Reflect	Describes reflect clearly in the first person, using a description and an image of a medium.	Student describes reflect, but minor errors in content knowledge	Student has major errors in content knowledge. Medium used;comprehension unclear.	The slide is incomplete - student is lacking explanation, picture, or narration.
Narration	Student narrates in detail in the first person, the tone and pace are appropriate.	Student narrates in first person, but there is background noise and lack of clarity in sound.	Narration is complete but the narration is not vocalized in first person.	Student narration is incomplete or incoherent, or the explanations are off topic.

Student Name: _____

Self Grade: _____/16 points

Peer Grade: _____/16 points **Peer Name:** _____

One comment from Peer Grader about one improvement to be made:

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Grading a graph

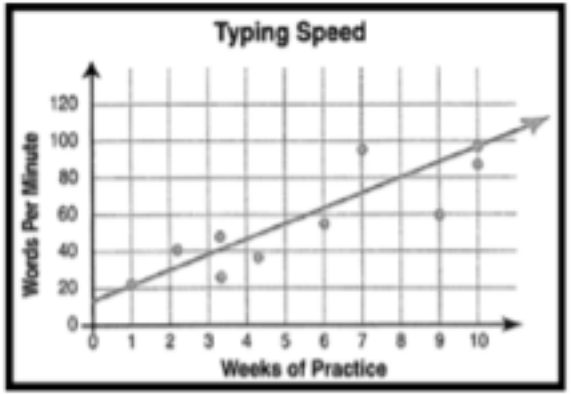
[with a rubric.]

Name: _____

Period: _____

Warm Up

Directions:
Analyze the graph to the left, and score it using the rubric below. Then, total the score out of 11 points.



Rubric

CATEGORY	POINT VALUE	NOTES	SCORE
DATA	1	The data points are accurately placed on graph	
TITLE	1	The title must accurately represent the graph. It follows the format Y axis versus X axis	
AXES	2 (1 pt. for each unit)	Axes are labeled with units of measurement on each axis. Examples: seconds, km, etc	
INTERVAL	1	The graph includes constant interval that matches the data set	
LABELS	2 (1 pt. for each axis)	Each axis has a clearly labeled title and represents the independent variable for the X-axis and dependent variable for the Y-axis	
SCALE	1	The data points fill entire space provided for graph	
BEST FIT LINE	1	The graph includes a best fit line ***–no connect the dots–***	
SUMMARY	2 (1 pt. for answer)	Describe the trend or pattern you see in the data and predicts what would happen when mass changes.	
		TOTAL POINTS	/11

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Creating a graph with a rubric, and then self-grading.

CREATE A GRAPH WITH "D-TAILS"

CATEGORY	POINT VALUE	NOTES
DATA	2	The data points are accurately placed on graph (WITH best fit line or bar shaded in)
TITLE	1	The title must accurately represent the graph. It follows the format Y-axis versus X-axis
AXES	2 (1 pt. for each unit)	Axes are labeled with units of measurement on each axis. Examples: seconds, km, etc.
INTERVAL	2 (1 pt. for each axis)	The graph includes constant interval that matches the data set
LABELS	2 (1 pt. for each axis)	Each axis has a clearly labeled title and represents the independent variable for the X-axis and dependent variable for the Y-axis
SCALE	1	The data points fill entire space provided for graph
TOTAL POINTS	_____ /10	**Name:** _____ **Period:** _____

Alicia Johal, 2017

Creating a scientific drawing [with a rubric.]

Mar Vista Academy
Scientific Drawing Rubric

Name: _____
Period: _____

	MASTERY	WORK IN PROGRESS		
TITLE	Title is informative, ce and larger than other t	Title is informative larger than other t	Title is informa and centered.	The title is incompl
LABELS	Every item that needs identified has a label. clear which label goes which structure.	Almost all items th need to be identif have labels. It is cl which label goes w which structure.	Most items tha need to be identified have labels.	Less than half of th items that need to identified have labe OR it is not clear.
GENERAL FORMATTING	Unlined paper is used. drawing is large enoug be clear. Student name and date are in the up right corner. There is a caption that describes drawing and includes scientific information.	Unlined paper is u The drawing is larg enough to be clea Student name, cla and date are in the upper right corner Caption is missing	Unlined paper used. The drawi is a little too la or a little too small. Details a caption are missing from t drawing.	Lined paper is used AND/OR the drawi much too small or too large. Caption information and de is missing.
DRAWING - GENERAL	Lines are clear and not smudged. There are al no erasures or stray m on the paper. Color is carefully to enhance th drawing.Overall, the q of the drawing is exce	There are a few erasures, smudged lines or stray mark the paper, but the not greatly detrac from the drawing. Color is used to enhance the draw	There are a few erasures, smud lines or stray marks on the paper, which detract from th drawing OR co not used carefi	There are several erasures, smudged or stray marks on t paper, which detrac from the drawing.
DRAWING - DETAILS	All assigned details ha been added. The detai clear and easy to ident	Almost all assigne details have been added. The details clear and easy to identify.	Some assigned details have be added. A few details are diff to identify.	Fewer than half of assigned details ar present.
ACCURACY	All assigned structures drawn accurately and recognizable. All assig structures are labeled accurately.	Almost all of the assigned structure drawn accurately are recognizable. assigned structure labeled accurately.	Some of the assigned structures are drawn accurate and are recognizable.	Less than half of th assigned structures drawn AND/OR la accurately.
SPELLING	All words are spelled correctly in the title, la and caption/descriptio	Most of the comm words are spelled correctly in the tit labels and descript	Some of the words are spel correctly in the title, labels, an description.	Half of the words a spelled correctly in title, labels, and description.

Peer Grader #1: _____ Peer Grader #2: _____

Alicia Johal, 2017

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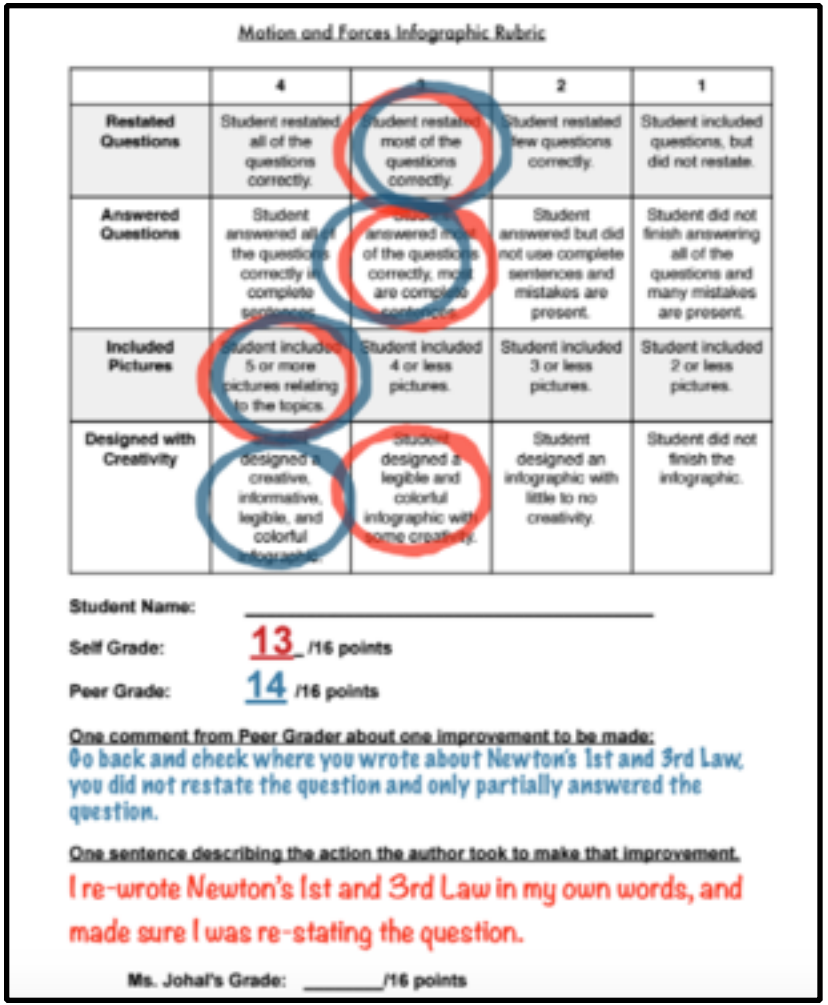
Do students know what to do with a rubric?

Alicia Johal, 2017



Motion and Forces Infographic Rubric

	4	3	2	1
Restated Questions	Student restated all of the questions correctly.	Student restated most of the questions correctly.	Student restated few questions correctly.	Student included questions, but did not restate.
Answered Questions	Student answered all of the questions correctly in complete sentences.	Student answered most of the questions correctly, most are complete sentences.	Student answered but did not use complete sentences and mistakes are present.	Student did not finish answering all of the questions and many mistakes are present.
Included Pictures	Student included 5 or more pictures relating to the topics.	Student included 4 or less pictures.	Student included 3 or less pictures.	Student included 2 or less pictures.
Designed with Creativity	Student designed a creative, informative, legible, and colorful infographic.	Student designed a legible and colorful infographic with some creativity.	Student designed an infographic with little to no creativity.	Student did not finish the infographic.

Student Name: _____

Self Grade: 13 /16 points

Peer Grade: 14 /16 points

One comment from Peer Grader about one improvement to be made:

Go back and check where you wrote about Newton's 1st and 3rd Law, you did not restate the question and only partially answered the question.

One sentence describing the action the author took to make that improvement.

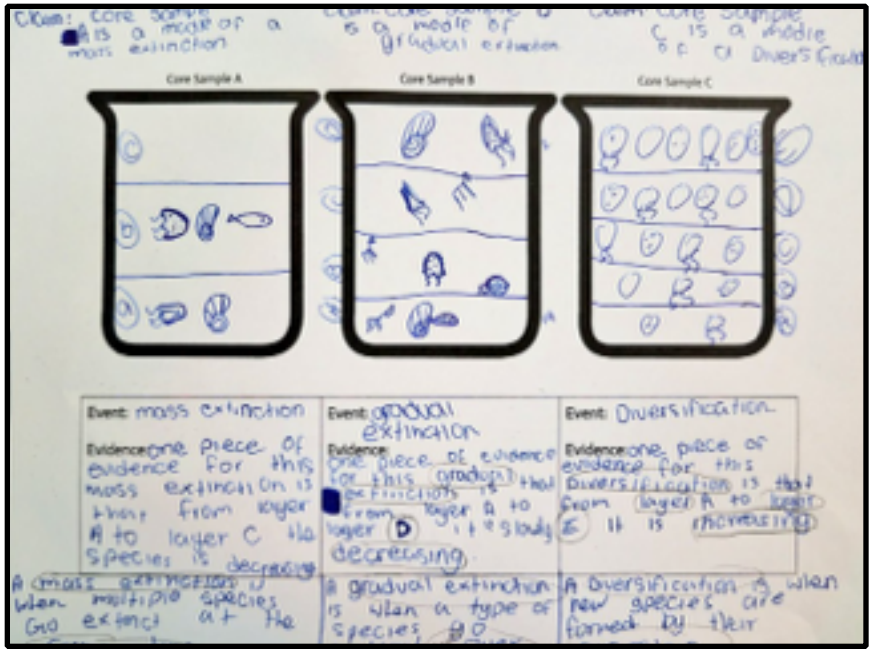
I re-wrote Newton's 1st and 3rd Law in my own words, and made sure I was re-stating the question.

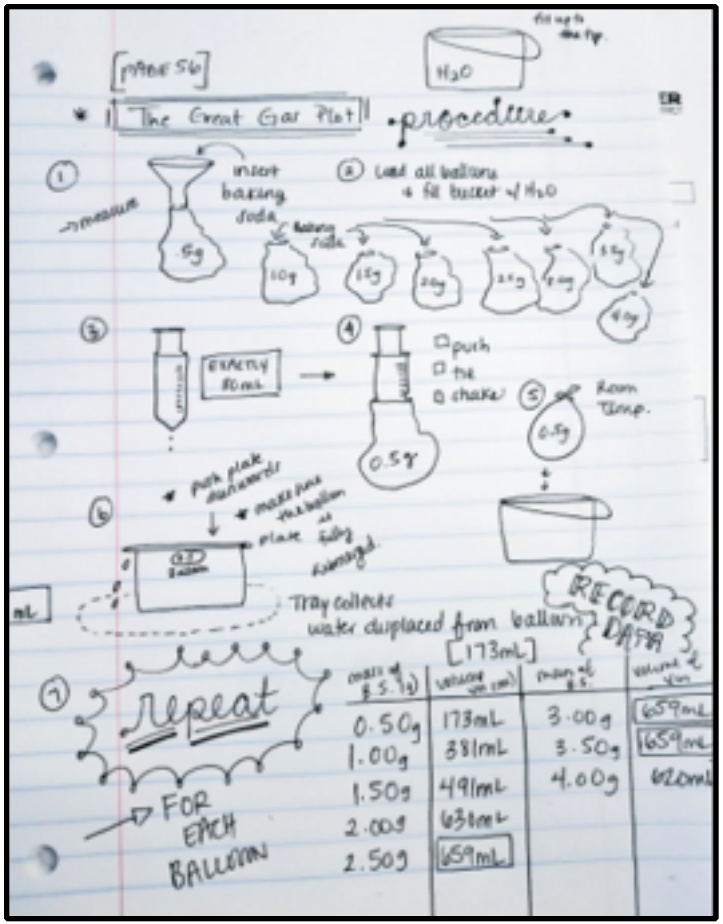
Ms. Johal's Grade: _____/16 points

MODEL EVERYTHING.

Alicia Johal, 2017

MODEL EVERYTHING.





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TRANSPARENCY

RELATIONSHIPS

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THE CULTURE OF YOUR CLASSROOM SHOULD BE REFLECTED IN YOUR GRADING POLICIES.

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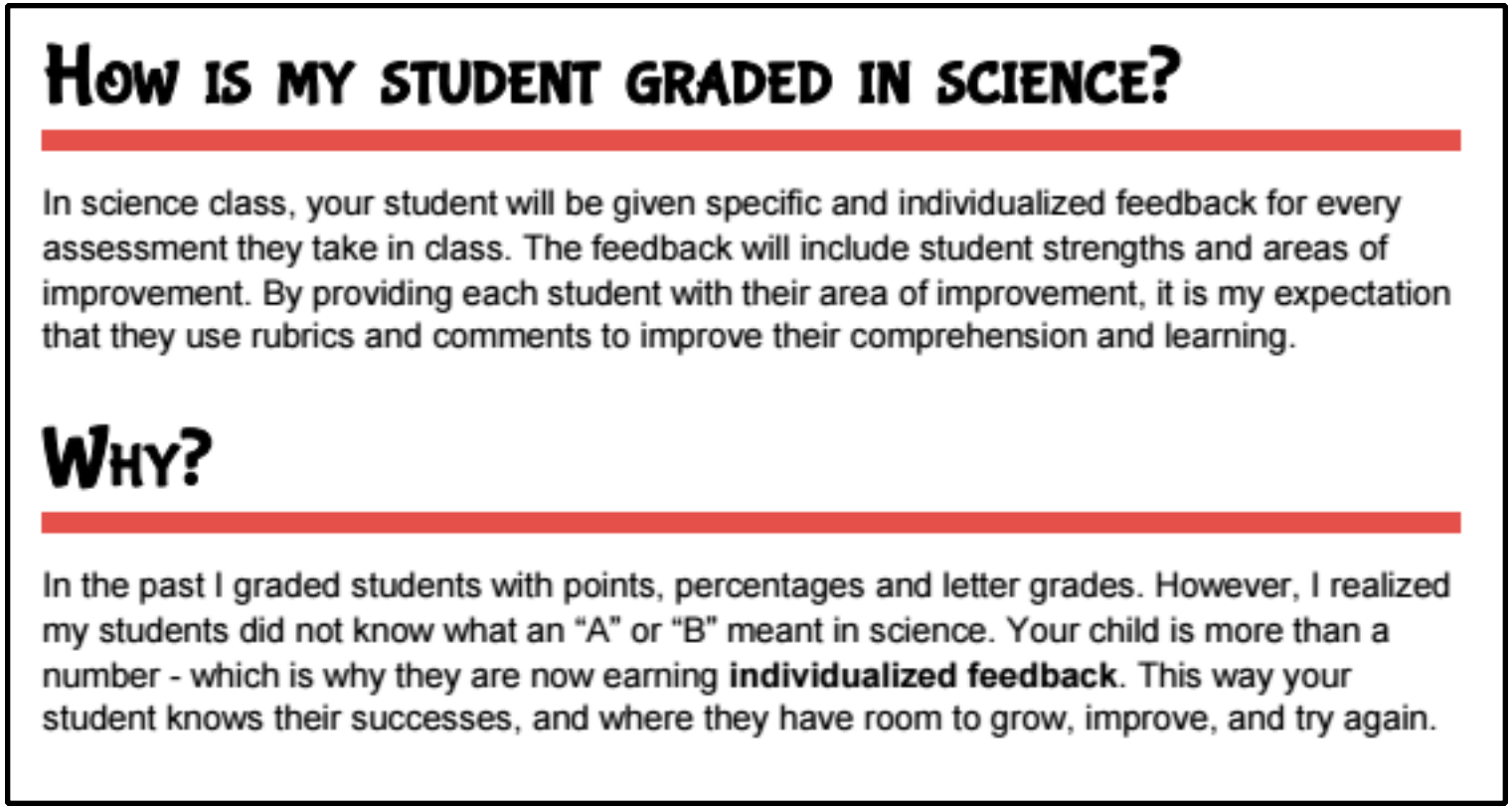


How is my student graded in science?

In science class, your student will be given specific and individualized feedback for every assessment they take in class. The feedback will include student strengths and areas of improvement. By providing each student with their area of improvement, it is my expectation that they use rubrics and comments to improve their comprehension and learning.

Why?

In the past I graded students with points, percentages and letter grades. However, I realized my students did not know what an "A" or "B" meant in science. Your child is more than a number - which is why they are now earning **individualized feedback**. This way your student knows their successes, and where they have room to grow, improve, and try again.

- Parent Letter explaining grade changes

Alicia Johal, 2017

What will grades look like?

When you log in to Jupiter as a parent it will look different. Each assessment in science is going to begin with the words "Mastery Mission". It is called a "Mastery Mission" because students will be working towards mastery of each content or skill taught in science. Your student's grade for each "Mastery Mission" will not be a letter or number.

Instead, their grade will be **'WIP'** or **'MAS'**.

- **'WIP'** stands for Work In Progress. This means your student did not grasp all of the content/skill the first time they were assessed, and they have an opportunity to revise and try again.
- **'MAS'** stands for "Mastery of Standard". This means your student can think critically and apply their deep understanding of the science content/skills at an 8th grade level.
- **Students who earn 'MAS' on every "Mastery Mission" will get to choose their own report card grade. Students earning a "WIP" on any "Mastery Missions" need to revise/redo in order to pass the class.**

- Parent Letter explaining grade changes

Alicia Johal, 2017

Mechanical engineers are being asked to design a safe and lightweight Landing Capsule that is capable of protecting the rover that holds first aid and food supplies. Success will be evidenced by planning, designing, engineering and testing the Landing Capsule to oppose the force of gravity. An analysis of Newton's Laws as they relate to this project, with little to no damage of the rover and supplies on board, will result in your idea being chosen by NASA to start manufacturing!

NASA Drone	Landing Capsule	Rover w/ supply box	Houston, Texas
			

Criteria and Constraints:

1. The Landing Capsule must hold the weight of one supply-carrying rover (egg)
2. Maximum mass of Landing Capsule (without supply-carrying rover): 50.0 grams of materials
3. Maximum dimensions of Landing Capsule (without supply-carrying rover): 15cm x 15cm x15cm.

Testing Environment:

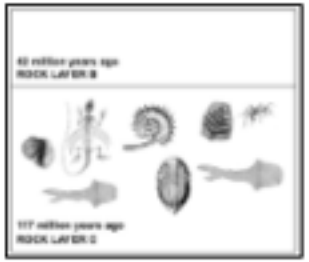
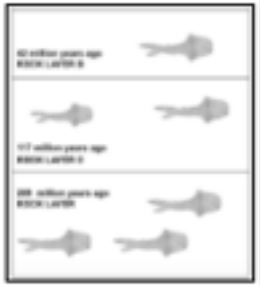
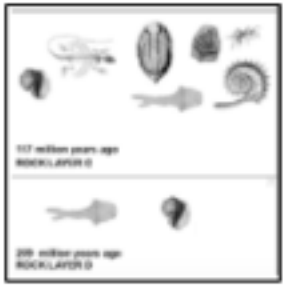
1. The supply-carrying rover (egg) is loaded into the Landing Capsule after mass is determined.
2. Each Landing Capsule is dropped once during class by the teacher.
3. Each Landing Capsule will be opened to check for a damaged rover.
4. All mechanical engineers must clean up any damage or fallen debris.

Earning Your Mastery:

MAS = Mastery	WIP = Work In Progress
❑ Minimize damage to rover ❑ Mass lower than 50 grams ❑ Dimensions smaller than 15 x 15 x 15cm ❑ In depth analysis includes overview, design process, justification, conclusion,	❑ Rover damaged by the fall ❑ Landing Capsule heavier than 50 grams ❑ Dimensions larger than 15cmx15cmx15cm

A.Johal, 2017

Alicia Johal, 2017

Fossil Record 1	Fossil Record 2	Fossil Record 3
		

N.Amer an Spid	Ammono ea	Sea Shell	Fern	Trilobi e	Grass Lizard	Hawaiia Jellyfis	Stingray	Rainbow Trout
								

Mass Extinction

Student writes correct claim, sup with 1 piece of evidence discuss data from rock layers & explains clearly how evidence supports	❑ Claim is not answered correctly ❑ Evidence statements do not include data ❑ Reasoning doesn't explain how evidence supports clai ❑ Paragraph is illegible, incomplete or _____
MAS	**WIP**

Alicia Johal, 2017

Questions? Ideas?
Let's Collaborate &
STAY CONNECTED!