

ARTS IN MOTION CHARTER SCHOOL | 7th Grade Science CURRICULUM MAP

	ARTS IN MOTION CHARTER SCHOOL 7th Grade Science CURRICULUM MAP				
Projects	Essential Questions	Enduring Understandings	Cognitive Skills	CCSS	Final Product
Geology Story	<ul style="list-style-type: none"> How can I use patterns and clues in nature to help me figure out how different natural features formed? 	<ul style="list-style-type: none"> Features on Earth's surface are formed by natural processes and cycles. These processes and cycles follow set patterns and rules, and leave tell-tale clues of their actions. People can use the clues they find on different features as evidence to figure out how those features were formed. 	<ul style="list-style-type: none"> Making Connections & Inferences Modeling Narrative Organization (Transitions, Cohesion, Structure) Precision 	<ul style="list-style-type: none"> NGSS.MS-ESS2-1 NGSS.MS-ESS2-2 NGSS.MS-ESS2-3 NGSS.MS-ESS2-4 NGSS.MS-ESS2-5 NGSS.MS-ESS2-6 	<ul style="list-style-type: none"> Comic Book
Natural Hazards: CAN YOU BUILD IT?	<ul style="list-style-type: none"> How can I use engineering strategies to design a structure that could withstand a natural hazard in a specific location? 	<ul style="list-style-type: none"> Different kinds of natural hazards occur frequently in populated areas. In order to live in these locations, people must have buildings that are able to withstand the effects of these natural hazards. They use math and engineering practices to design, test, and build structures that are safe and livable. 	<ul style="list-style-type: none"> Justifying / Constructing an Explanation Making Connections & Inferences Multimedia in Oral Presentation Norms / Active Listening Oral Presentation 	<ul style="list-style-type: none"> NGSS.MS-ESS2-1 NGSS.MS-ESS2-2 NGSS.MS-ESS2-3 NGSS.MS-ESS2-4 NGSS.MS-ESS2-5 NGSS.MS-ESS2-6 	<ul style="list-style-type: none"> Presentation
Changes Matter	<ul style="list-style-type: none"> What are the properties of different types of matter? What do these differences between matter *matter*? 	<ul style="list-style-type: none"> chemical properties that can be used to identify it. 	<ul style="list-style-type: none"> Making Connections & Inferences Modeling Norms/Active Listening 	<ul style="list-style-type: none"> NGSS.MS-PS1-1 NGSS.MS-PS1-2 NGSS.MS-PS1-3 NGSS.MS-PS1-4 NGSS.MS-PS1-5 NGSS.MS-PS1-6 	<ul style="list-style-type: none"> Changes Matter: Temperature Lab Chem-stagram Page

<p>Chemical Reactions</p>	<ul style="list-style-type: none"> • How do scientists conduct research? • How do we study chemical reactions? 	<ul style="list-style-type: none"> • In a chemical reaction, chemical substances interact with each other and are transformed into new substances. 	<ul style="list-style-type: none"> • Asking questions • Designing Processes and Procedures • Hypothesizing • Interpreting Data/info • Justifying/Constructing and Explanation 	<ul style="list-style-type: none"> • NGSS.MS-PS1-1 • NGSS.MS-PS1-2 • NGSS.MS-PS1-3 • NGSS.MS-PS1-4 • NGSS.MS-PS1-5 • NGSS.MS-PS1-6 	<ul style="list-style-type: none"> • Design your own Experiment • Individual Conclusion from Alka Seltzer Lab
<p>Microworld Museum</p>	<ul style="list-style-type: none"> • What visible and invisible relationships connect the different pieces of an ecosystem? • How can we use models to show how ecosystems function? 	<ul style="list-style-type: none"> • The movement of energy and matter underlies many ecological processes • Models can be used to represent systems and their interactions – such as inputs, processes, and outputs– and energy and matter flows within systems. • Models can be used to describe observable and unobservable phenomena and to show the relationships between variables. All models have limitations and focus on only part of a complex system. 	<ul style="list-style-type: none"> • Critiquing the Reasoning of Others • Justifying / Constructing an Explanation • Modeling 	<ul style="list-style-type: none"> • NGSS.MS-LS2-3 	<ul style="list-style-type: none"> • Model • Curator's Commentary • Critique of Peer's Installation
<p>My Ecosystem</p>	<ul style="list-style-type: none"> • How do humans impact ecosystems, and how do ecosystems impact us? • What actions can we take to have a positive impact on natural environments? 	<ul style="list-style-type: none"> • All human activity draws on natural resources and has both short and long term consequences, positive as well as negative, for the health of people and the natural environment . 	<ul style="list-style-type: none"> • Critiquing the Reasoning of Others • Designing Processes and Procedures • Interpreting Data/Info • Justifying/Constructing an Explanation 	<ul style="list-style-type: none"> • NGSS.MS-LS2-1 • NGSS.MS-LS2-2 • NGSS.MS-LS2-3 • NGSS.MS-LS2-4 • NGSS.MS-LS2-5 	<ul style="list-style-type: none"> • Multimedia Campaign • Critique of Peer's Proposal

ARTS IN MOTION CHARTER SCHOOL | 7th Grade Science UNIT PLAN

Project	Geology Story
Suggested Time	<ul style="list-style-type: none"> ● 4 weeks
Essential Questions	<ul style="list-style-type: none"> ● How can I use patterns and clues in nature to help me figure out how different natural features formed?
Enduring Understandings	<ul style="list-style-type: none"> ● Features on Earth's surface are formed by natural processes and cycles. These processes and cycles follow set patterns and rules, and leave tell-tale clues of their actions. ● People can use the clues they find on different features as evidence to figure out how those features were formed.
Cognitive Skills	<ul style="list-style-type: none"> ● Making Connections & Inferences ● Modeling ● Narrative ● Organization (Transitions, Cohesion, Structure) ● Precision
Focus Areas	<ul style="list-style-type: none"> ● Earth Materials and Systems 1 (ESS2.A) ● Water and the Earth 2 (ESS2.C) ● Plate Tectonics 1 (ESS2.B)
	<ul style="list-style-type: none"> ● NGSS.MS-ESS2-1

CCSS	<ul style="list-style-type: none"> ● NGSS.MS-ESS2-2 ● NGSS.MS-ESS2-3 ● NGSS.MS-ESS2-4 ● NGSS.MS-ESS2-5 ● NGSS.MS-ESS2-6
Checkpoints	<ul style="list-style-type: none"> ● Geologic Processes Research Station ● Geology Lab ● Erosion Modeling Page ● Geological Processes Investigation
Final Product	<ul style="list-style-type: none"> ● Comic Book

ARTS IN MOTION CHARTER SCHOOL | 7th Grade ELA LESSON PLAN

Project	Geology Story	Essential Questions	<ul style="list-style-type: none"> ● How can I use patterns and clues in nature to help me figure out how different natural features formed? 	Final Product	<ul style="list-style-type: none"> ● Comic Book
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Checkpoint	<ul style="list-style-type: none"> ● Geologic Processes Research Station
Cognitive Skills	<ul style="list-style-type: none"> ● Making Connections & Inferences ● Modeling
Objective	<ul style="list-style-type: none"> ● Students will choose either to do the video or the reading and create a model for 1 of each of the following: chemical weathering, mechanical weathering, erosion and plate tectonics Your model needs to include: - Before (may be copied from video or reading) - During (you need to show how the process happens based on what you have learned) - After (may be copied from video or reading)

Activities	<ul style="list-style-type: none">● Checkpoint
Resources	<ul style="list-style-type: none">● Modeling Workshop
Assessment	<ul style="list-style-type: none">● Performance task assessment using cognitive skills

Objectives

Students will identify and practice the skill of modeling in order to start creating amazing comic books.

Modeling Workshop



you mean there's more to
life than just being really
really good-looking?

What Is a Model?

Modeling: representing and translating concepts with **visual representations, symbols, or 3D models**.

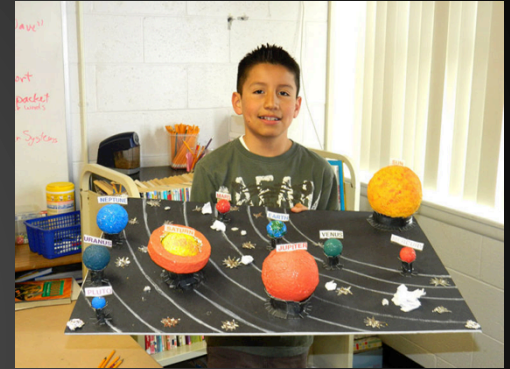


Golden Gate Bridge Model

Why Do Scientist Use Models?

Visualize concepts that are complex, very large, or even very small Ex. Solar System, Cells, DNA

Observe tests on a smaller scale before you build the real thing Ex. Bridge Designs



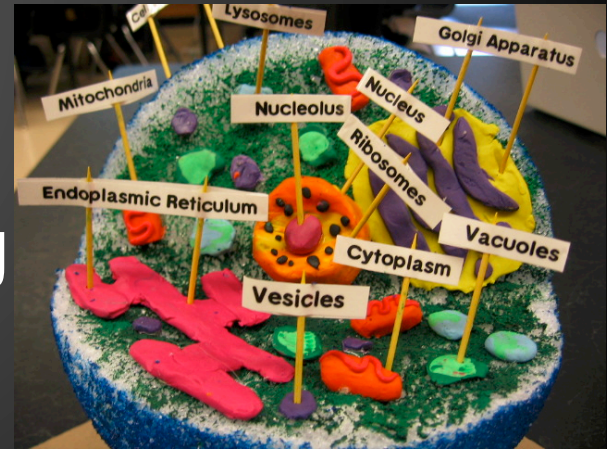
What is a Level 5 Model?

Accurate (REAL - what you actually see!)

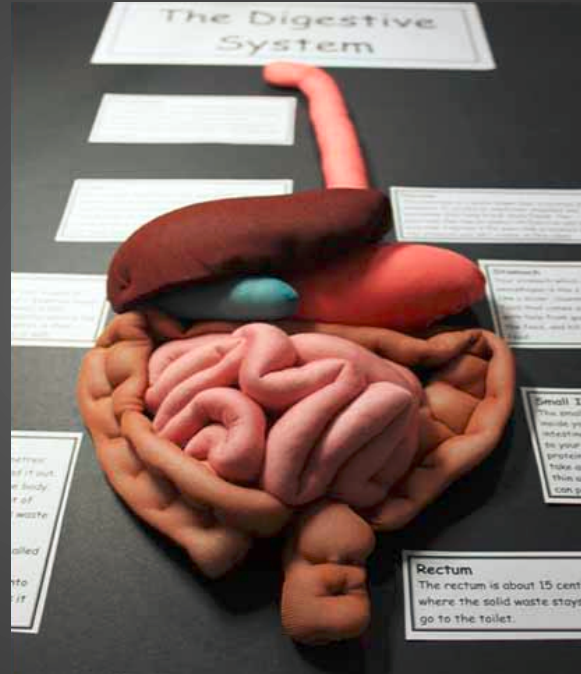
Details & Key Features (additions that
IMPORTANT: Models
always have some
inaccuracy
make it true to life - names, labels)

Specific Components

(Before, During, After; showing
how the different parts are
connected)



Which One is Better? Why?

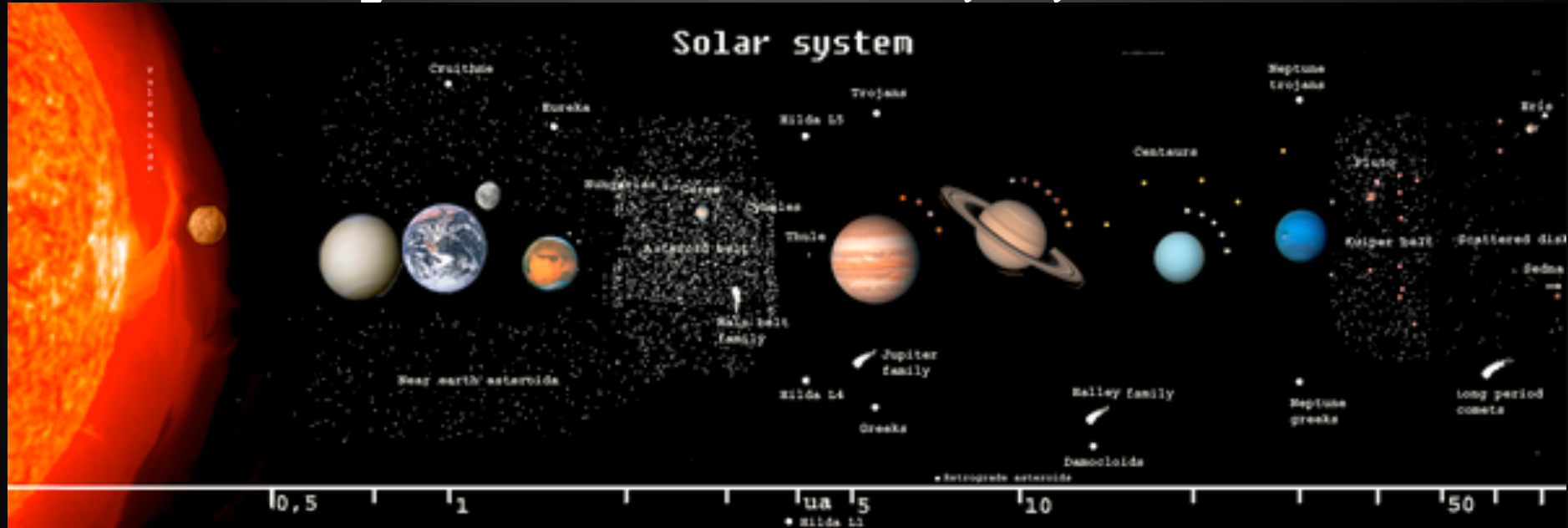


Accurate?

Details?

Specific
Components?

Solar System Model - 3, 4, or 5?



How Will You Model With Your Comic Book?

Accurate - the comic displays a true representation of the feature

Details - the comic has labels and extra description to help you learn

Specific Components - Shows what happened before, during, and after

3

Identifies **general** components of a concept and develops a **partially accurate visual** and/or model to represent some key features.

- General idea of concept
- Some labels (might be incorrect)
- Attempts to make make past or future connections

4

Identifies **specific components** of a concept and develops an **accurate visual** and/or model to represent **most key features**.

- Clear representation of concept
- Labels & extra descriptions
- Makes connections to past and future actions

5

Identifies significant components of a concept and develops an accurate visual and/or model to represent key features. Visual or model begins to make visible the relationship of the components to the whole.

- Clear and detailed
- Makes connections to past and future actions
- Showing/explaining how individual pieces are connected to/affect others

Drive Time

1. Open Google Drive
2. Click “shared with me”
3. Look for “Assignment: Modeling Deposition_2015”
4. Move document into “Lab Works” folder
5. Open document



Back up: **<http://tinyurl.com/oqcjcum>**

3

- General idea of concept
- Some labels (might be incorrect)
- Attempts to make make past or future connections

4

- Clear representation of concept
- Labels & extra descriptions
- Makes connections to past and future actions

5

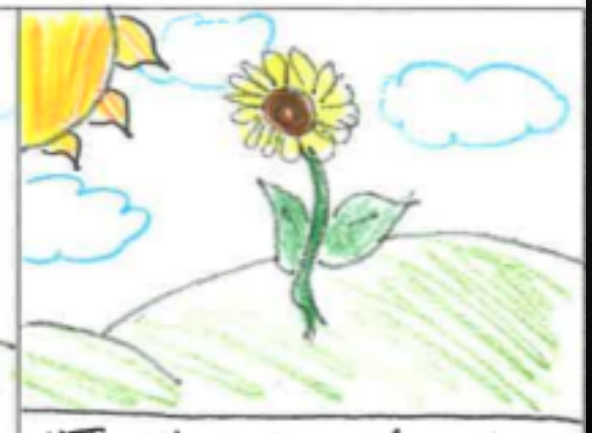
- Clear and detailed
- Makes connections to past and future actions
- Showing/explaining how individual pieces are connected to/affect others



It's great being a flower!
I'm outside all day!



My stem helps me stand up
and when I bloom, I look so pretty.



"I get my energy from the
Sun to help me make food"

3

- General idea of concept
- Some labels (might be incorrect)
- Attempts to make make past or future connections

4

- Clear representation of concept
- Labels & extra descriptions
- Makes connections to past and future actions

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- Clear and detailed
- Makes connections to past and future actions
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3

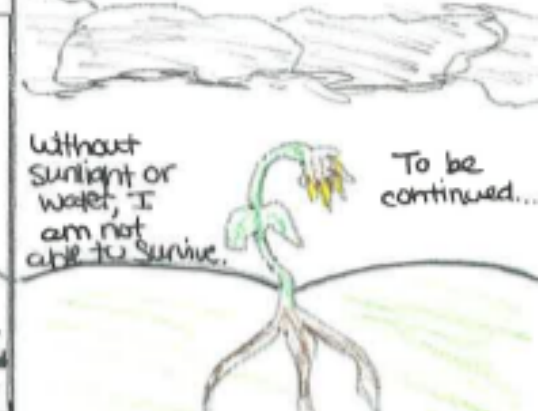
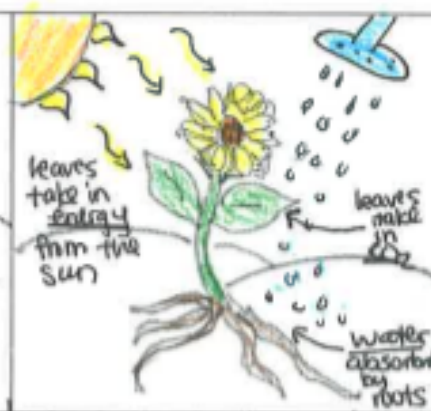
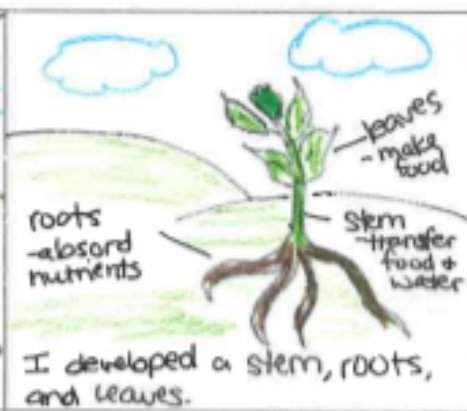
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- Labels & extra descriptions
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- Clear and detailed
- Makes connections to past and future actions
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Your Turn!

Scroll Down to 2nd Page

& Take blank half sheet to draw your comic on

Minute 4:18-5:18



When you are done...

Trade your comic with the person next to you and grade them on the rubric.

SILENTLY Write on the back :

the score, why & one thing they need to
work on

Mini-Lesson: Feedback Session

3 steps:

1. Compliment the scientist

a. What did the model do well when scored against the rubric?

2. Criticize the scientist

a. What did the model do poorly when scored against the rubric?

3. Construct the scientist

a. What can be done to the model to make it better?

How to take the PICTURE

1. Click “Insert”
2. Select “Image”
3. “Take a Snapshot”
4. Take a picture of your comic
5. Click “Select”

YOU DID IT!

Fill Aha Reflections

Precision & Geology

Objectives

Students will

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ARTS IN MOTION CHARTER SCHOOL | 7th Grade Science UNIT PLAN

	Geology Story
	<ul style="list-style-type: none"> ● 4 weeks
Questions	<ul style="list-style-type: none"> ● How can I use patterns and clues in nature to help me figure out how different natural features formed?
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	<ul style="list-style-type: none"> • Comic Book
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ARTS IN MOTION CHARTER SCHOOL | 7th Grade ELA LESSON PLAN

Story	Essential Questions	<ul style="list-style-type: none"> • How can I use patterns and clues in nature to help me figure out how different natural features formed? 	Final Product	<ul style="list-style-type: none"> • Comic Book
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Unit	<ul style="list-style-type: none"> • Geologic Processes Research Station
Skills	<ul style="list-style-type: none"> • Making Connections & Inferences • Modeling
Objectives	<ul style="list-style-type: none"> • Students will choose either to do the video or the reading and create a model for 1 of each of the following: chemical weathering, mechanical weathering, erosion and plate tectonics Your model needs to include: - Before (may be copied from video or reading) (you need to show how the process happens based on what you have learned) - After (may be copied from video or reading)
Assessment	<ul style="list-style-type: none"> • Checkpoint
Activities	<ul style="list-style-type: none"> • Modeling Workshop
Evaluation	<ul style="list-style-type: none"> • Performance task assessment using cognitive skills

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Standards	<ul style="list-style-type: none"> • Performance task assessment using cognitive skills

Geology Story Comic Project Checklist

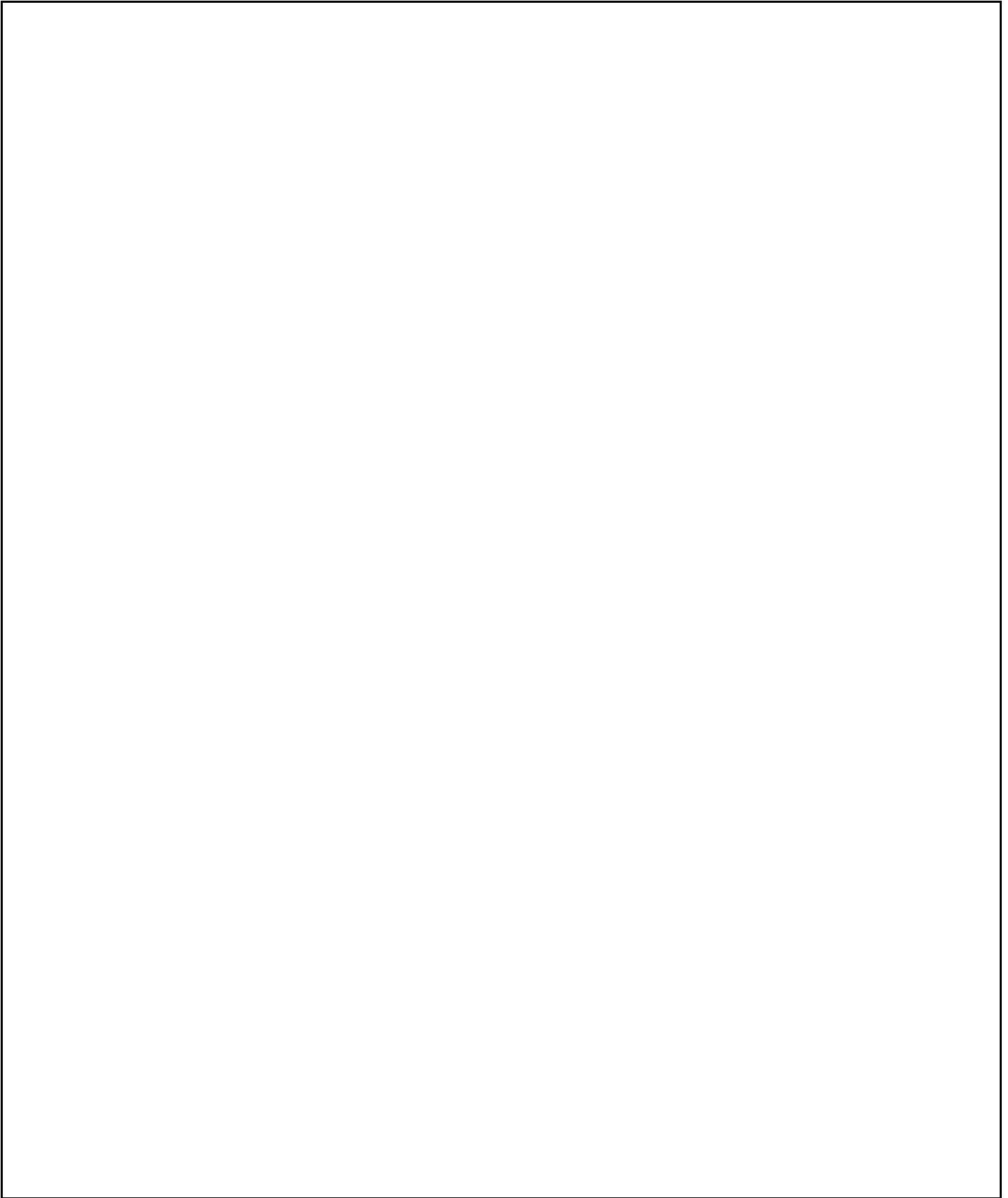
Final Product

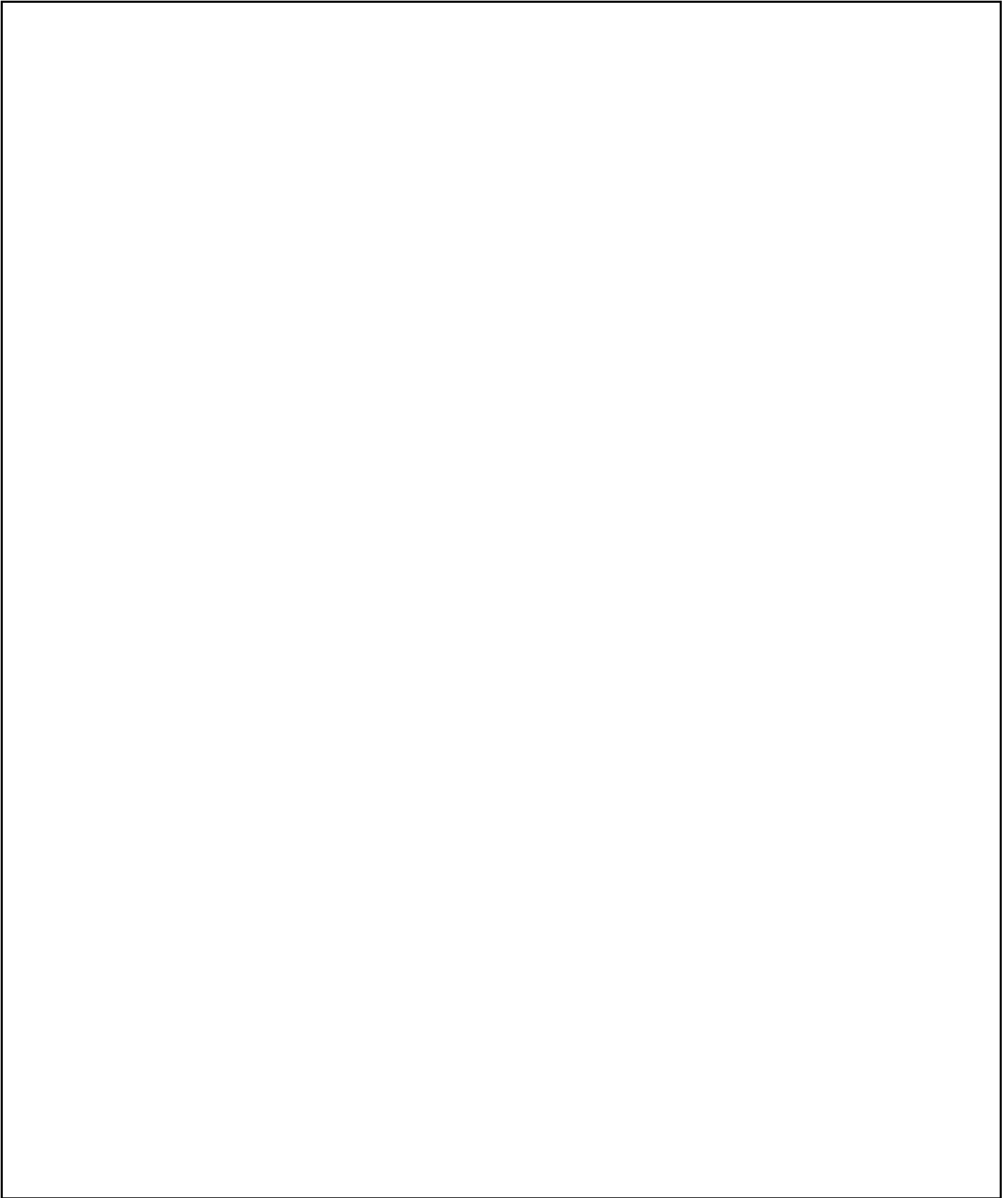
- A comic book with a minimum of 3 pages describing 3 of the following: erosion, weathering, deposition, or plate tectonics.
 1. Define the term and explain how it works/what it does
 2. Explain how the feature shown in your picture was formed
 3. Explain how old the feature is and how long it took to form
- You may have more than 3 pages.
- The comic book must be colored and contain at least one line of narration or dialogue in each square.
- There will be a gallery walk to allow you to see all of one another's comic books!

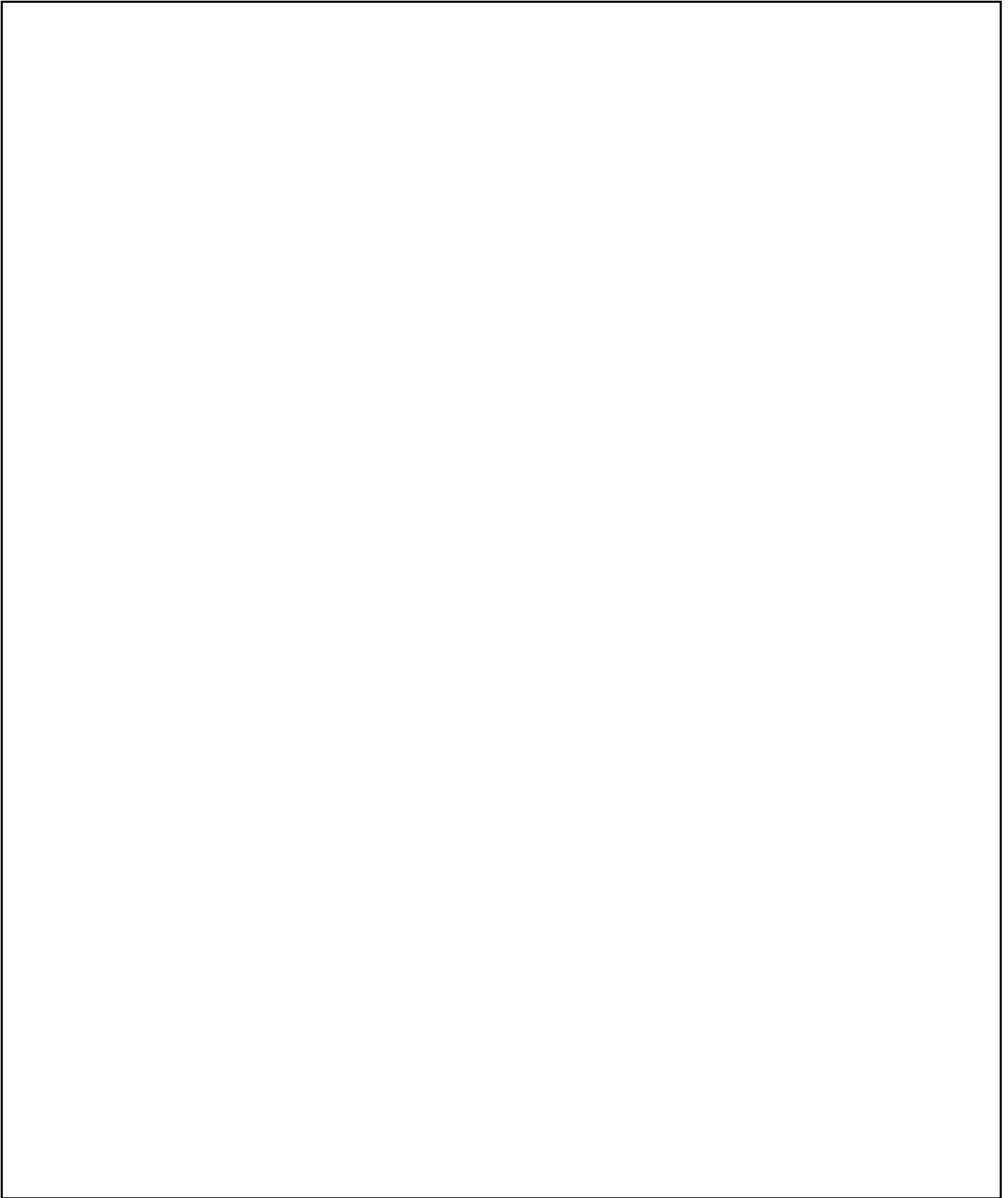
Directions to submit assignment:

1. Click "Insert"
2. Select "Image"
3. "Take a Snapshot"
4. Take a picture of your comic.
Make sure you can see the ENTIRE comic in the picture (get as close as possible so we can see details)
5. Click "select"
6. A picture of your comic should now be on this document

Insert your images in the boxes provided!







CTIONS:

either to do the video or the reading and create a model for 1 of each of the following: chemical weathering, mechanical weathering, erosion and plate tectonics

Model needs to include:

Before (may be copied from video or reading)

During (you need to show how the process happens based on what you have learned)

After (may be copied from video or reading)

FOR DIRECTIONS: How many models do you need to have at the end of this? _____

Chemical Weathering Video & Reading

either Reading or Video (you can delete whichever one you do not choose)

[1](#)

one of the three basic types of chemical weathering

might the one you choose: carbonation, hydration, oxidation

(include a picture of your model below)

[Reading 1](#) (wave rock)

[Reading 1](#) (Karst Towers)

[Reading 2](#) (wave rock)

[Reading 2](#) (Karst Towers)

either:

the formation of Wave Rock

the formation of Karst Towers

(include a picture of your model below)

Mechanical Weathering Video & Reading

Choose: Video or Reading

o

how the circle formed within the larger rock

: a picture of your model below)

ing

one of the types of mechanical weathering:

ice (be sure to show expansion)

water, wind, gravity (be sure to show abrasion)

plants (be sure to show expansion)

: a picture of your model below)

Erosion Video & Reading

Choose: Video or Reading

[u](#) (watch from 2:34-3:40):

what happens either in water, ice or wind erosion

: a picture of your model below)

either:

[Reading](#): The creation of the Grand Canyon

[Reading](#): The effect of humans on erosion

t a picture of your model below)

Plate Tectonics
Choose: Reading or Video

[Video](#) (0:00-2:00)

what is happening to pull the plates apart.
(include a picture of your model below)

[Diagram](#)

a model of:
transform boundary
(include a picture of your model below)

convergent boundary
(include a picture of your model below)

divergent boundary
(include a picture of your model below)

(directions continue below)

I'm done with my models, what do I do?

yourself on the rubric for 1 of your models and explain why.

a peer on the rubric for 1 of their models and explain why.

Modeling Rubric

2	3	4	5
<p>Identifies surface level components of a concept and develops an inaccurate visual or model; key features of the concept are missing or partially represented. OR Only a few features are represented, with inaccuracies.</p>	<p>Identifies general components of a concept and develops a partially accurate visual and/or model to represent some key features.</p>	<p>Identifies specific components of a concept and develops an accurate visual and/or model to represent most key features.</p>	<p>Identifies significant components of a concept and develops an accurate visual and/or model to represent key features. Visual model begins to make visible the relationship of the components to the whole.</p>
<p>Basic image missing some parts Missing some labels, incorrect labels Basic description of before and after</p>	<ul style="list-style-type: none"> • General idea of concept • Some labels, all correct labels • Description of before, during and after 	<ul style="list-style-type: none"> • Clear representation of concept • Labels clear and all present • Description begins to delve into the process of before, during and after 	<ul style="list-style-type: none"> • Same as 4 • Showing/ explaining how individual pieces are connected to/affect others • The description includes the process • The model visualizes the process

do you deserve this score?

SAMPLE OF MODEL

Chemical Weathering Video & Reading

Choose: Reading or Video

one of the basic types of chemical weathering:
(a picture of your model below)



***Should be titled carbonation

INCLUDE A BEFORE, DURING AND AFTER

aded Chemical Weathering for myself:

Modeling Rubric

2	3	4	5
<p>Identifies surface level components of a concept and develops an accurate visual or model; key features of the concept are missing or only partially represented. OR key features are represented, with inaccuracies.</p>	<p>Identifies general components of a concept and develops a partially accurate visual and/or model to represent some key features.</p>	<p>Identifies specific components of a concept and develops an accurate visual and/or model to represent most key features.</p>	<p>Identifies significant components of a concept and develops an accurate visual and/or model to represent key features. Visual or model begins to make visible the relationship of the components to the whole</p>
<p>Basic image missing some parts Missing some labels, incorrect labels Basic description of before or after</p>	<ul style="list-style-type: none"> • General idea of concept • Some labels, all correct labels • Description of before, during and after 	<ul style="list-style-type: none"> • Clear representation of concept • Labels clear and all present • Description begins to delve into the process of before, during and after 	<ul style="list-style-type: none"> • Same as 4 • Showing/ explaining how individual pieces are connected to/affect others • The description includes the process • The model visualizes the process

do you deserve this score?

I deserve a 4.5 because I have titled my model and clearly labeled all relevant parts (like the “carved face” and “cracked rock”). My description clearly explains what process is happening during- “process of carbonation” and in my model I explain what carbonation did to the statue “you can no longer see the physical details.” I did not get a 5 because, though my model starts to visualize the process (in the zoom -in) it is not very clear what is happening in

aded [insert the geological process you are grading] for myself:
Modeling Rubric

2	3	4	5
<p>ifies surface level components of a concept and ops an accurate visual or ; key features of the pt are missing or only lly represented. OR key features are sented, with iracies.</p>	<p>Identifies general components of a concept and develops a partially accurate visual and/or model to represent some key features.</p>	<p>Identifies specific components of a concept and develops an accurate visual and/or model to represent most key features.</p>	<p>Identifies significant components of a concept and develops an accurate visual and/or model to represent key features. Visual or model begins to make visible the relationship of the components to the whole</p>
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do you deserve this score?

ert name] graded [geological process] for [peer-owner of chromebool
Modeling Rubric

2	3	4	5
<p>ifies surface level components of a concept and ops an accurate visual or ; key features of the pt are missing or only lly represented. OR key features are ented, with iracies.</p>	<p>Identifies general components of a concept and develops a partially accurate visual and/or model to represent some key features.</p>	<p>Identifies specific components of a concept and develops an accurate visual and/or model to represent most key features.</p>	<p>Identifies significant components of a concept and develops an accurate visual and/or model to represent key features. Visual or model begins to make visible the relationship of the components to the whole</p>
<p>Basic image missing some parts Missing some labels, incorrect labels Basic description of before or after</p>	<ul style="list-style-type: none"> • General idea of concept • Some labels, all correct labels • Description of before, during and after 	<ul style="list-style-type: none"> • Clear representation of concept • Labels clear and all present • Description begins to delve into the process of before, during and after 	<ul style="list-style-type: none"> • Same as 4 • Showing/ explaining how individual piec are connected to/affect others • The description includes the proces • The model visualiz the process

do they deserve this score? Compliment-Criticize-Construct

Aha Reflection

was it like to learn about the same topics from readings versus videos?

resources did you like to learn from most?

did your partner help you or not help you improve your models?

do you need to remember to work on for modeling?
