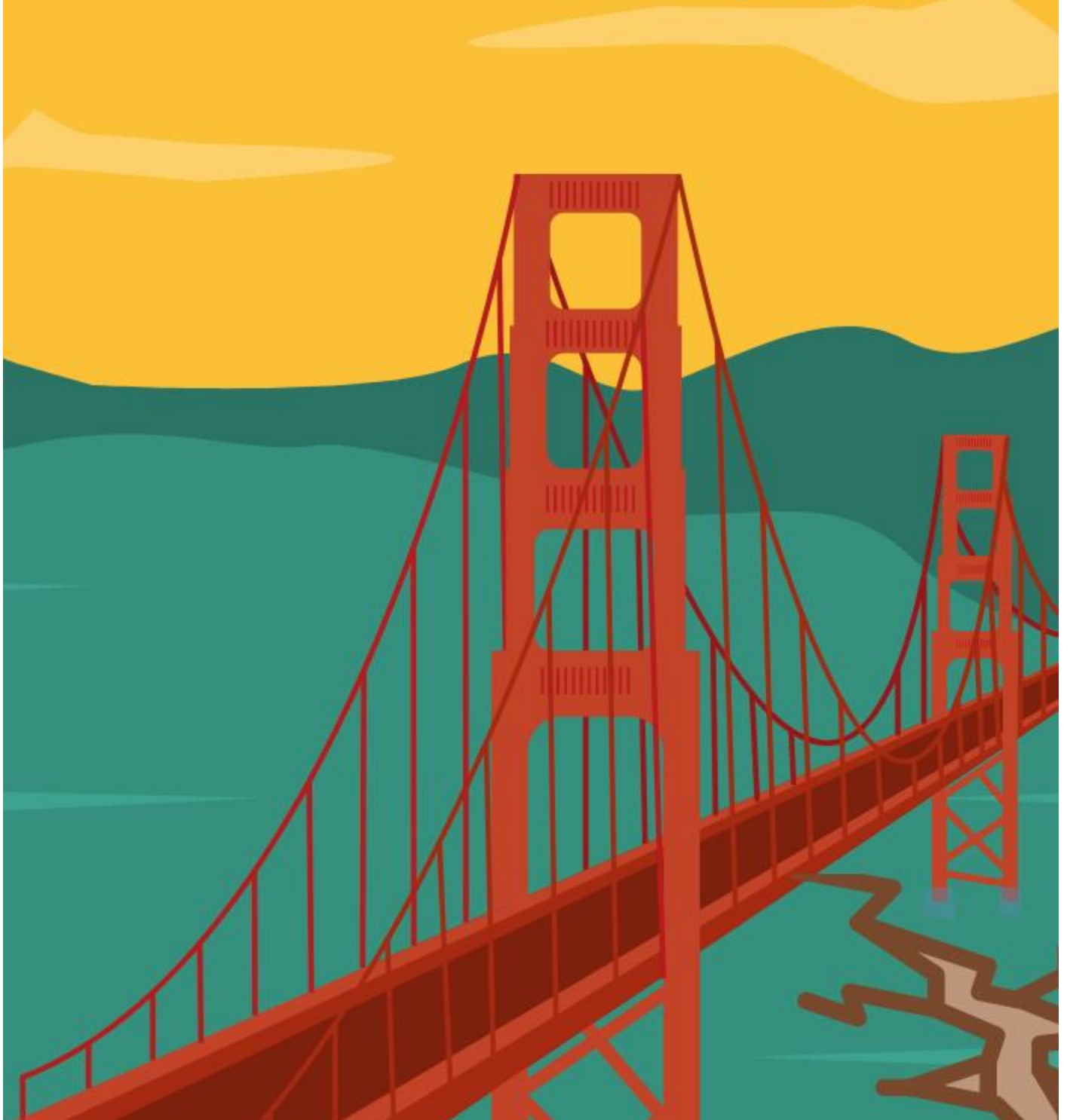


NOVEL STUDY

JAKE AND THE QUAKE

By Cary I. Sneider



Why Novel Studies in the Science Classroom?

Here at Nitty Gritty Science we want to foster the love of reading and improve science literacy. We believe that using novel studies in the science classroom will not only give students exposure to different perspectives but will also help them develop an understanding of how science vocabulary applies to so many events in their lives.

Research also shares benefits of using novel studies in the science classroom such as:

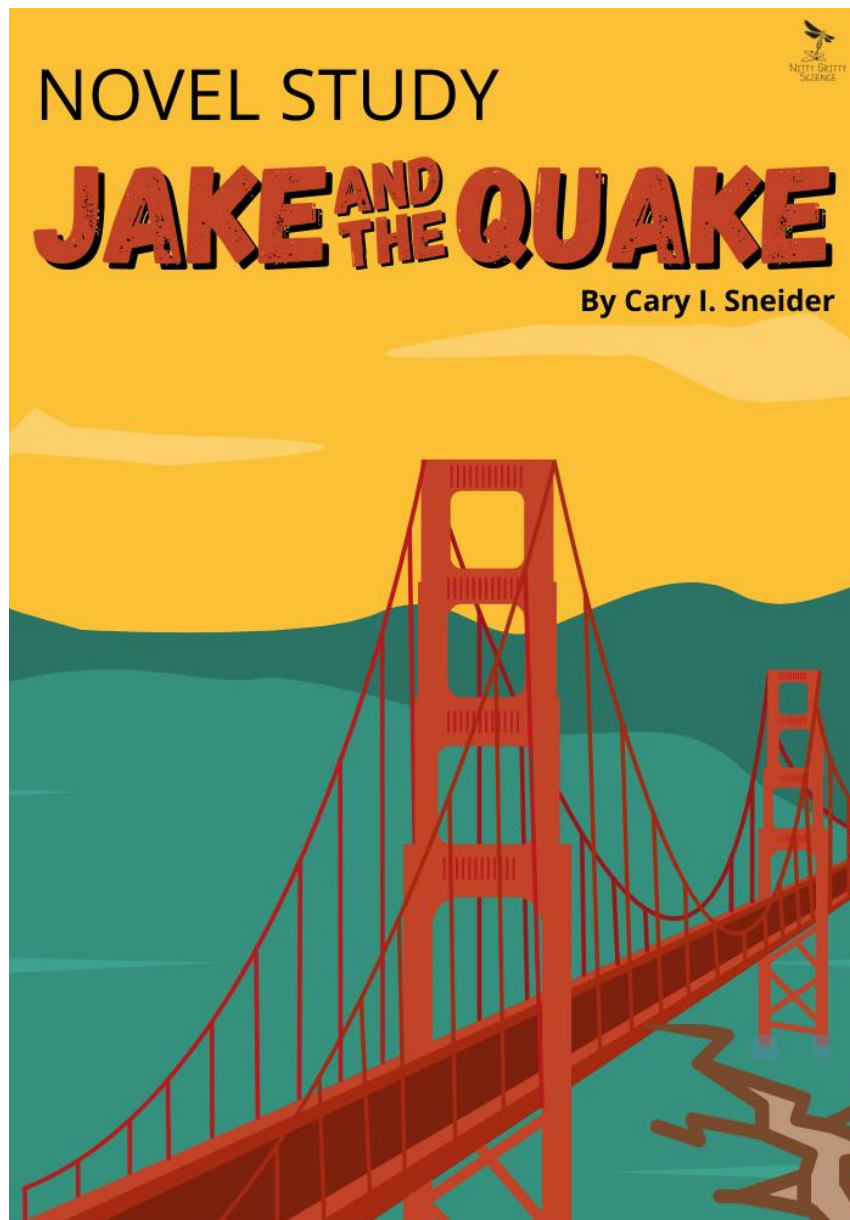
The literacy from reading can easily come from non-fiction and fiction novels that surround a science-related topic and are far more of a high-interest read for the majority of students than reading a textbook (Anderson & Hite, 2010; Batchelor, 2017; Coiro, 2012; Freudenrich, 2000).

Science fiction novels are an excellent way to engage students in science ideas while also helping students improve their literacy skills. (Creech and Hale, 2006)

Teachers can add in other readings from the internet and news articles which brings the reading level down to a more manageable level, however students are more willing to learn and spend the time to learn new vocabulary when highly engaged in what they are reading (Weinbugh et al., 2014).

There is very little research out there about the usefulness of using novels in classrooms other than ELA. Others have used novels and other types of formats to get students excited about science and science concepts (Batchelor, 2017; Coiro, 2012; Freudenrich, 2000; Ivey & Fisher, 2005; Jarman & McClune, 2001), but very few have used novels to teach science concepts and also try to increase literacy skills among students in the secondary classroom, so Nitty Gritty Science is here to help with that!

Happy reading,
Erica



Jake and the Quake novel study is based on the novel by Carl I. Sneider and follows the story of Jake amid the Loma Prieta earthquake of 1989.

When Jake finds an unusual rock in the cliffs under the Golden Gate Bridge, he embarks on an adventure of discovery that will bring him new friends, new knowledge, and even the confidence to face a devastating earthquake.

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Check out the following sample pages focusing on science vocabulary, reading comprehension, and literacy-based projects!


Teacher Guide included!


Find out what students already know.

JAKE AND THE QUAKE Name: _____ Date: _____

BEFORE YOU READ

Directions: Imagine you have discovered something scientifically significant. Do you think that all scientific discoveries should be shared with the public? Why or why not? Agree or disagree and provide reasons for your opinion.

I Agree 

I Disagree 

JAKE AND THE QUAKE Initials: _____

WORD STUDY: Chapters 1-2

I. Crabs

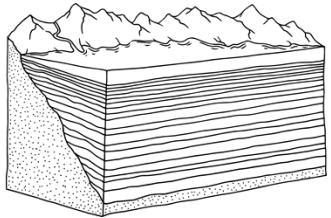
Draw a picture of a crab and label its antennae, and abdomen.

JAKE AND THE QUAKE Initials: _____

WORD STUDY: Chapters 1-2

5. Rock Layers

What is another name for rock layers?



JAKE AND THE QUAKE Name: _____ Date: _____

Volcanoes

Directions: Using the word bank, identify each part of a volcano and then correctly label it below.

Lava Magma Chamber Crater
Side vent Conduit

Describe:

Where magma is stored

Bowl-shaped depression of the volcano

Molten rock that breaks through the Earth's surface

Passageway in which lava flows towards the surface

An opening through which volcanic materials erupt

JAKE AND THE QUAKE Initials: _____


WORD STUDY: Chapters 3-6

I. AIDS

What does AIDS stand for?

3. Diamond

Draw a picture of a diamond.



5. Lava flow

What are two types of lava flow?

1. _____


2. _____

JAKE AND THE QUAKE Initials: _____

WORD STUDY: Chapters 3-6

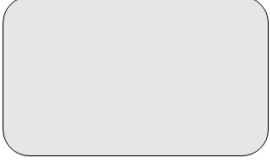
7. Molten rock

_____ is another name for molten rock.



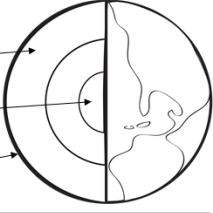
8. Crater

Draw a picture of a crater after a meteor impact.



9. Earth's Layers

Label the layers of earth.




10. Plates

The _____ is broken into separate sections called plates.

11. Belt of Volcanoes

Identify the belt of volcanoes that rim the Pacific Ocean.



Vocabulary

WORD STUDY: Chapters 7-10

16. Meteoroid, meteor, meteorites, asteroid

Explain the difference between meteorites, and an

17. Geological Period

During which period

Cretaceous

Fossils Wordsearch

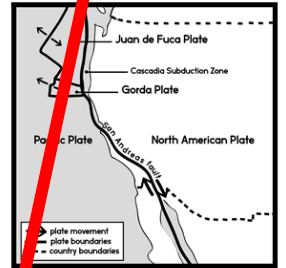
Directions: Find the words in the word

R	P	A	L	E	O	N	T	C
L	A	B	D	U	V	E	S	D
A	J	D	E	E	R	G	I	C
J	O	U	I	T	V	N	I	C
G	J	K	I	O	O	R	T	R
A	U	A	E	S	A	S	E	C
P	R	I	A	K	E	C	F	S
Y	A	U	T	C	N	I	T	X
Y	R	N	N	Q	A	J	E	I

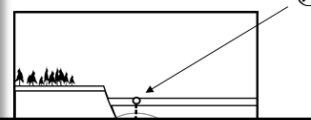
WORD STUDY: Chapters 11-16

I. San Andreas Fault

The San Andreas Fault is located in which state and divides which two plates?



2. Epicenter



Circle the epicenter of the earthquake.

WORD STUDY: Chapters 17-19

6. Microscope

Correctly match the part of the microscope to its description.

Light source
Arm
Eyeiece
Stage

7. Magnification

Why is magnification important when looking through a microscope?

9. Bunsen Burner

Draw a picture of a Bunsen burner and explain what it is used for.

WORD STUDY: Chapters 17-19

10. Hypothesis

Put the steps of the Scientific Method in order.

- ___ Draw conclusions
- ___ Research
- ___ Ask a Question
- ___ Form a hypothesis
- ___ Conduct an Experiment
- ___ Analysis

11. Gravity Map

A gravity map shows differences in rock and soil _____.

- a. masses
- b. volumes
- c. densities

13. U.S. Geological Survey

What is the purpose of the USGS?

Design Challenge: Withstand an Earthquake

Overview:

Imagine you're an engineer. Build the tallest structure you can using spaghetti and marshmallows to see if it can withstand a simulated earthquake.

Materials:

- 10 Spaghetti sticks
- 15 pieces of tape
- 20 Marshmallows
- Cardboard for base
- Shake table

Directions:

1. In your group, discuss and then design a blueprint for your structure.
2. Build the structure using the materials you've been given.
3. Fix the structure to the cardboard.
4. Once the structure are completed, it's time to test its strength on the shake table.

Design Blueprint:

Novel Project option



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Contact Information:

Email: erica@nittygrittyscience.com

Website: www.nittygrittyscience.com

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