

NOVEL STUDY

*The*  
**REINVENTION**  
*of* **EDISON**  
**THOMAS**

By Jacqueline Houtman



## 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:

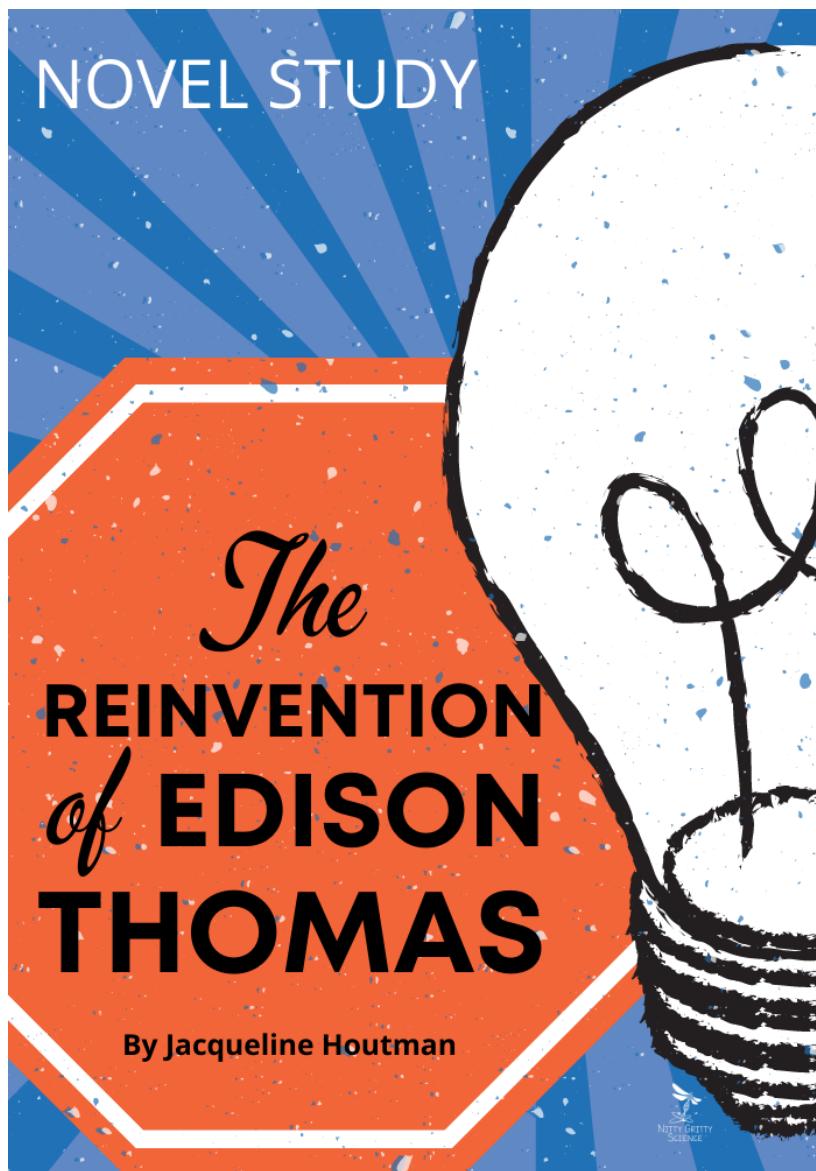
*The literacy from reading can easily come from non-fiction and fiction novels that surround a science-related topic and are far more of a high-interest read for the majority of students than reading a textbook (Anderson & Hite, 2010; Batchelor, 2017; Coiro, 2012; Freudenrich, 2000).*

*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



Eddy's a science geek and has problems communicating with others. The combination gives the class bully, who pretends to be Eddy's friend, plenty of ammunition. Eddy Thomas can read a college physics book, but he can't read the emotions on the faces of his classmates. He can spend hours tinkering with an invention, but he can't stand more than a few minutes in a noisy crowd, like the crowd at the science fair, which Eddy fails to win. When the local school crossing guard is laid off, Eddy is haunted by thoughts of the potentially disastrous consequences and invents a traffic-calming device, using parts he has scavenged from discarded machines. By trusting his real friends, Eddy uses his talents to help others and rethinks his purely mechanical definition of success.

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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.

Name: \_\_\_\_\_

**BEFORE YOU READ**

Directions: The technological design process is an important part of any good design. Arrange the steps in the correct order.

- ❖ Refine and rete
- ❖ Create a model
- ❖ Communicate t
- ❖ Identify the pr



Initials: \_\_\_\_\_

**WORD STUDY: Chapters 1-2**

1. Carotid artery

The carotid arteries are major blood vessels that are found in the \_\_\_\_\_ and supply blood to the brain, neck, and face.

2. Blood Vessel

3. Electric Current

Initials: \_\_\_\_\_

**WORD STUDY: Chapters 1-2**

7. System of naming species

Use the word bank to fill in the blanks below.

binomial      Carl Linnaeus      species  
*Phoca vitulina*      *Ursus maritimus*

1700's a Swedish botanist, \_\_\_\_\_ developed word naming system called \_\_\_\_\_ nomenclature.



Initials: \_\_\_\_\_

**WORD STUDY: Chapters 3-5**

1. Grams

2. Paleontologist

How many po

Initials: \_\_\_\_\_

**Nonferrous & Ferrous Metals**

Directions: After researching the differences between nonferrous and ferrous metals, fill in the table below.

	Non-ferrous	Ferrous
Examples		
Do they contain iron?		
Do they have magnetic properties?		
Are they resistant to rust/corrosive?		
Are they recyclable?		
Are they expensive?		
Uses		

Initials: \_\_\_\_\_

**WORD STUDY Chapters 1-2**

14. Earth's rotation

As Earth revolves around the sun, it rotates, or spins on its \_\_\_\_\_.



15. Electromagnet

An electromagnet's magnetic field is produced by an electrical current.

TRUE

FALSE

16. Vortex

Draw a picture of a vortex below.



17. Temperature Gradient

Definition:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

18. Enhanced Fujita Scale

The Enhanced Fujita Scale rates the intensity of \_\_\_\_\_, which are classified based on the \_\_\_\_\_ they do and not on the direct measurement of wind \_\_\_\_\_.

Vocabulary

# Novel Project option

THE REINVENTION OF EDISON THOMAS Initials: \_\_\_\_\_

**WORD STUDY: Chapters 6-9**

15. Velocity  
Velocity includes the speed of an object and the \_\_\_\_\_ of the \_\_\_\_\_ motion.

16. Radio Waves





17. Ultrasound  
An ultrasound uses what type of waves to create an image?

19. Sonar  
Identify two uses for sonar.

THE REINVENTION OF EDISON THOMAS Initials: \_\_\_\_\_

**Electromagnetic Spectrum**

Directions: The Electromagnetic Spectrum is the entire range of electromagnetic waves. Draw a line to match each source to its wave type.

X-ray Machine	Sun	Radioactive Elements	TV Remote
			
Radio	Microwaves	Infrared	Visible

THE REINVENTION OF EDISON THOMAS Initials: \_\_\_\_\_

**WORD STUDY: Chapters 10-15**

1. Variable  
A variable is something that does NOT change in an experiment.

2. Germinate  
Definition: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Chordates  
What are characteristics of chordates? Use the word notochord in your answer.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

THE REINVENTION OF EDISON THOMAS Initials: \_\_\_\_\_

**WORD STUDY: Chapters 10-15**

11. Cell  
What is a cell?  
\_\_\_\_\_  
\_\_\_\_\_

13. Audible  
Identify two synonyms for the word audible.

15. Fermentation  
Identify the three stages of fermentation.  
1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

THE REINVENTION OF EDISON THOMAS Initials: \_\_\_\_\_

**WORD STUDY: Chapters 10-15**

17. Saturn  
Draw a picture of Saturn.  
\_\_\_\_\_

18. Spectrophotometer  
A spectrophotometer is an apparatus that is used to measure the intensity of \_\_\_\_\_.

20. Eddy Coil & Recycling  
What does an eddy coil do in recycling?  
This is a good thing?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

THE REINVENTION OF EDISON THOMAS Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Final Project**

Directions: Come up with and create your own invention. Fill out the information for your invention and on the following page create an advertisement for it.

- Invention name: \_\_\_\_\_
- Cost of invention: \_\_\_\_\_
- Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Uses of invention: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- How it's beneficial/why people need it: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

