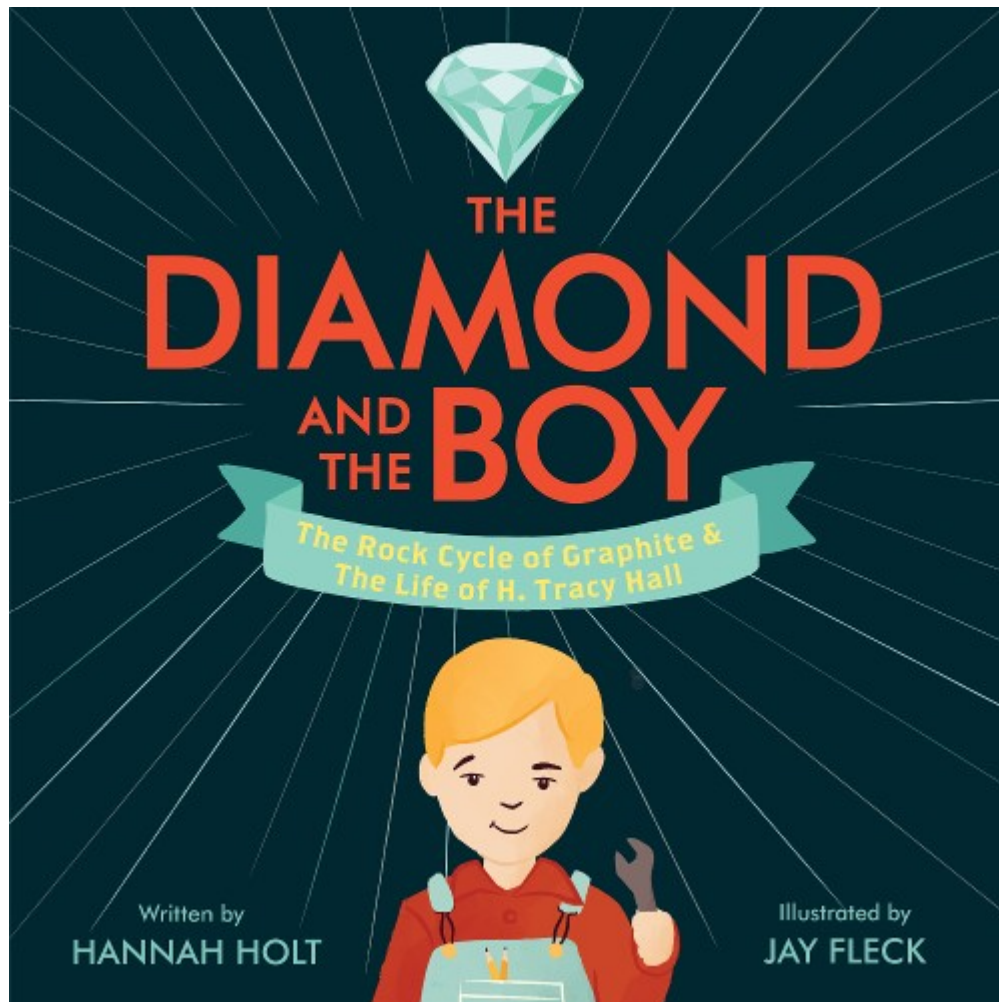


# THE DIAMOND AND THE BOY

*A Classroom Guide*



# About This Guide

Feel free to adapt the examples in the guide to meet the needs of specific classrooms. Copies may be made for educational use; however, it is not be sold without express written consent.

**Title: The Diamond and the Boy**

**Author: Hannah Holt**

**Illustrator: Jay Fleck**

**Ages: 4-8**

**Publisher: Balzer+Bray (October 2, 2018)**

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# An Introduction to the Book

## The Cover

Look at the illustrations:

What do you see?

What is the boy holding?

What is in his pocket?

What do you think this boy likes?

Read the title:

What is this book about?

What do you think the boy on the cover is going to do?

## Who is the author?



*Hannah Holt.*

As a child, Hannah loved building towers and staring at the night sky. When she wasn't stargazing or constructing elaborate block cities, she frequently had her nose in a book. She grew up to earn a degree in civil engineering. Now she writes picture books. She lives in Oregon with her husband, four children, and a pet cat.

This book is about her grandfather, H. Tracy Hall. It is her first book.

## Who is the illustrator?



*Jay Fleck.*

As a child, Jay drew a lot, but grew up to earn a degree in computer engineering. While living in Chicago, the art and culture inspired him to turn to illustrating. He has several other picture books out, including *Tilly & Tank* and *Black Belt Bunny*. He lives in Illinois with his wife, two children, and a dog.

## One book, two stories

Open to the first page of the story.

[A rock named graphite,]

[A boy named Tracy,]

Explain that *The Diamond and the Boy* is a work of non-fiction. It tells two true stories side-by-side:

- ◆ The natural process of turning graphite into diamond is told on left-hand pages.
- ◆ The life of H. Tracy Hall is on right-hand pages. Tracy grew up to build a diamond-making machine.

Before you read the book, encourage children to listen for words used on both sides of the story.

## English Language Arts

### Mapping the Story

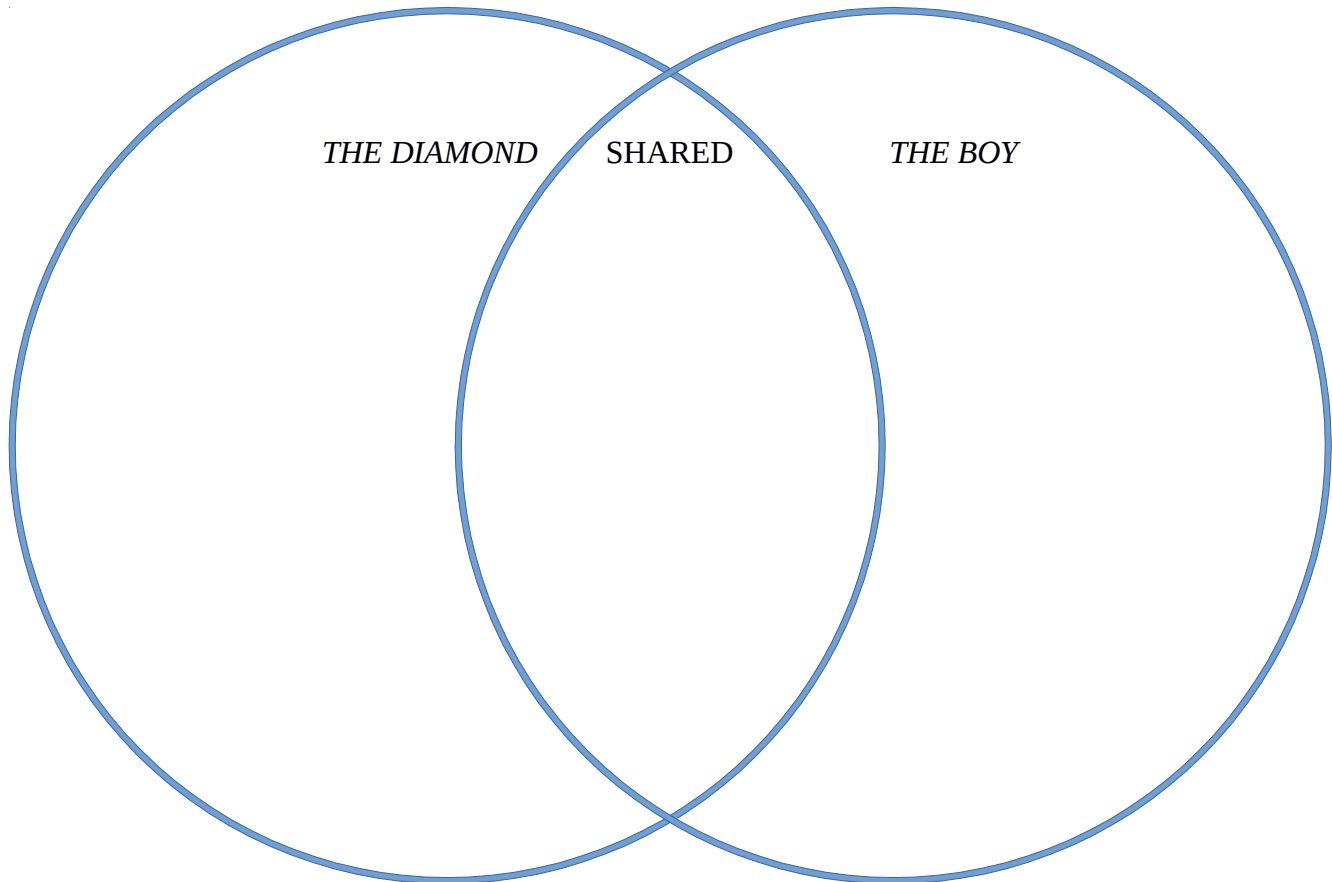
After reading the story have students complete the following chart with words or pictures:

<b>Beginning</b>	
In the beginning, the <b>stone</b> ...	In the beginning, <b>Tracy</b> ...
<b>Middle</b>	
The <b>stone</b> changed because...	<b>Tracy</b> changed because....
<b>End</b>	
The <b>stone</b> became a...	<b>Tracy</b> became a...

## Comparing and Contrasting

- ◆ Why do you think the author chose to tell these two stories side-by-side?
- ◆ How were the two stories alike?
- ◆ How were they different?

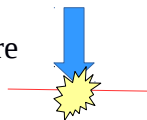
Consider using the following chart to help students sort the key elements of each text.



Alive



Faced Pressure



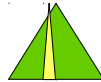
Has been in a volcano



Not alive



Lived in a tent



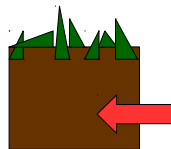
Can move by himself



Waited



Found under ground

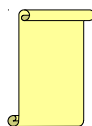


Has something to do with

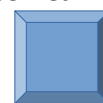
Faced Heat



Can read



DIAMONDS!



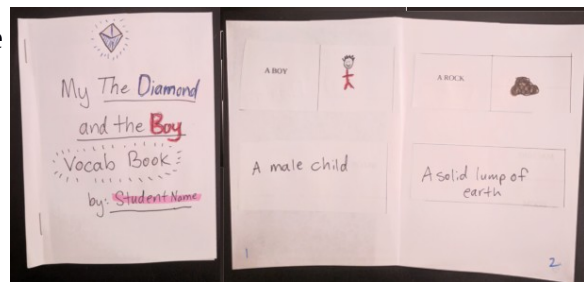
## Vocabulary

Help children make a create a word diary by completing the following table and cutting and pasting each word into the pages of a mini-book (words continue to the next page).

The word:	Draw a picture:	Write a definition in your own words:
A BOY		
A ROCK		
HEAT		
PRESSURE		
AN ERUPTION		
AN INTERRUPTION		

THE CHANGE		
WAITING		
MACHINE		
BOOM		
DIAMOND		

Three 8x11 pages cut in half and stapled will make two mini-books:



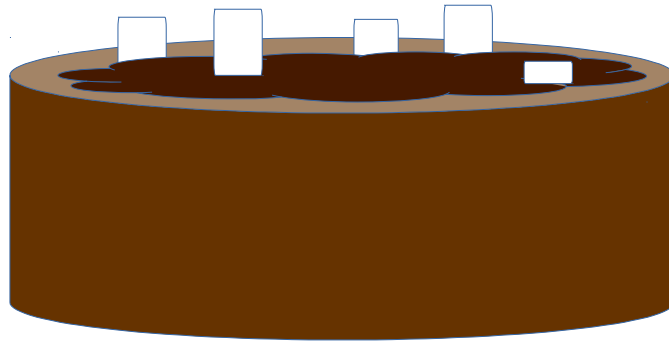
This text has other words that might be new for children—words like: meager, centuries, and magma. Ask children to raise their hands if they come across any words they don't understand while you are reading. Search out the meaning of these words by:

- ◆ Looking for clues in the surrounding text
- ◆ Looking for clues in the surrounding illustrations
- ◆ Using a dictionary
- ◆ Having a class discussion

## Comprehension Discussion Questions

Consider cutting the following questions into strips. Bury them in a bucket filled with dried beans or other “fake dirt.” Have children take turns digging for a group discussion question:

◆ Where is graphite in the beginning of this book?	◆ Where did Tracy Hall live as a child?
◆ How does graphite turn into diamond?	◆ Why did Tracy hide in the walls of his school?
◆ How does the stone move from deep in the earth to closer to the surface?	◆ What community building did Tracy visit often as a child?
◆ Once a diamond is closer to the surface, how do people get it out?	◆ How did Tracy pay for college?
◆ How is the rock different in the beginning vs the end?	◆ When Tracy’s boss wouldn’t help him build his machine, what did Tracy do?



*Possible activity: digging for questions*

## Writing

The following three pages present writing prompts for children. Using the book, *The Diamond and the Boy* as the subject have students try:

- ◆ Informational paragraph writing
- ◆ Opinion paragraph writing
- ◆ Creative writing: The Machine That I Would Build



## **I can write an informational paragraph.**

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

Choose to write about how diamonds are made in the earth or made in the laboratory.

Introduction: \_\_\_\_\_

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Fact 1

Fact 2

Fact 3

Conclusion: \_\_\_\_\_

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## **In my opinion...**

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

I like the (Rock / Boy) side of the story best because...

Reason 1

Reason 2

Reason 3

Conclusion: \_\_\_\_\_

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# The Machine That I Would Build

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

In *The Diamond & the Boy*, Tracy's machine turns graphite into diamond. If you could build a machine that turned something into anything else, what would it be?

Draw your machine

My machine turns \_\_\_\_\_ into \_\_\_\_\_.

Describe your machine: \_\_\_\_\_

\_\_\_\_\_

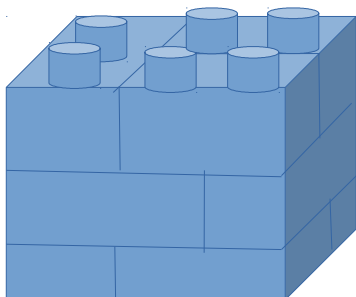
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# Science

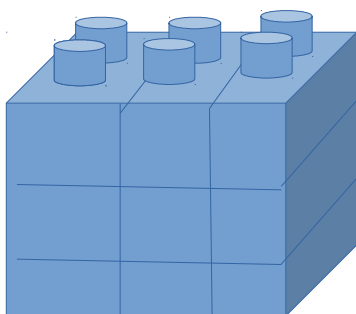
## Chemistry

*Attention getting activity:*

Build two LEGO structures with similar pieces. Have one of the cubes connected in all directions, like this:

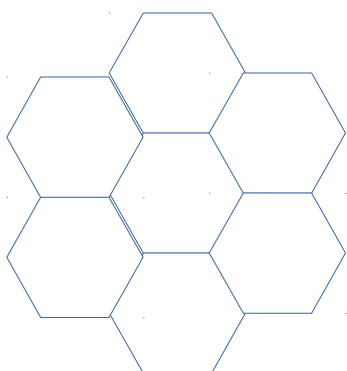


Have the second LEGO cube only connected in one direction, like this:

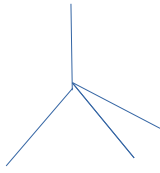


Have a student point to the strongest cube (the one connected in all directions). Ask them why they made that choice. (Maybe have them handle the cubes if they aren't sure.)

Explain that just like the two LEGO structures were made of the same thing, graphite and diamond are made of the same thing but have different connections. Graphite and diamond are both made of carbon. Carbon is an atom (one of the basic *building blocks* of the world and the universe). Atoms are so small that you can't see them with your eyes, but graphite is carbon atoms in thin loose honeycomb sheets. Like this:

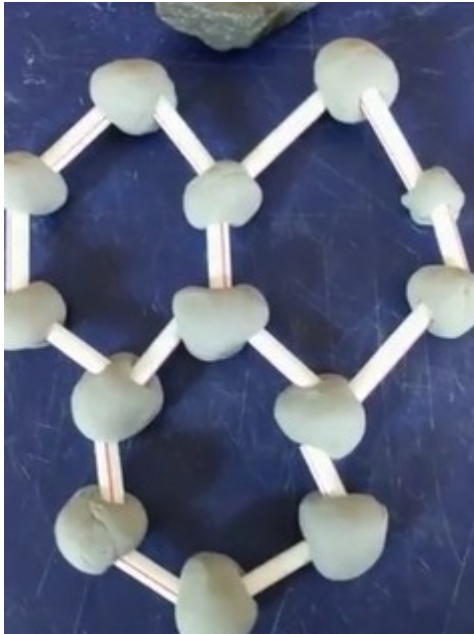


Diamond is stronger than graphite because it has strong bonds in three directions instead of just two.



**Bonus activity:**

You can make the basic molecular shapes of graphite and diamond with play dough balls and cut straws.



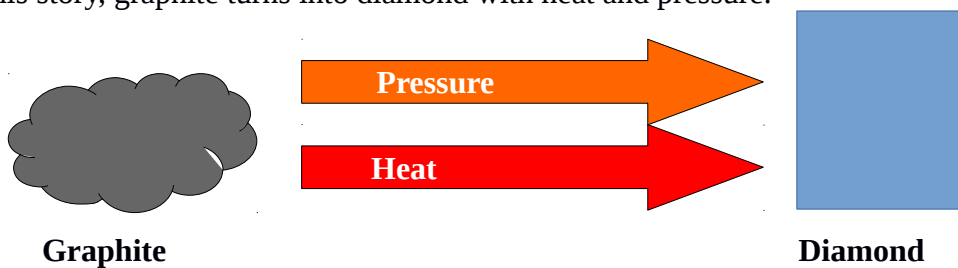
Graphite



Diamond

**The Rock Cycle**

In this story, graphite turns into diamond with heat and pressure.

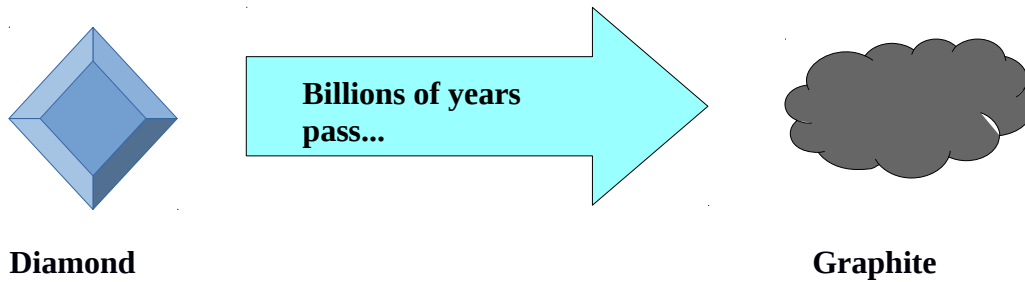


But is that the end of the story? Are diamonds really forever?

No. Even though diamond is stronger than graphite, graphite is the more (chemically) stable form of carbon. Over *billions* of years, diamonds will eventually change back into graphite.

**MYTH: A diamond is forever.**

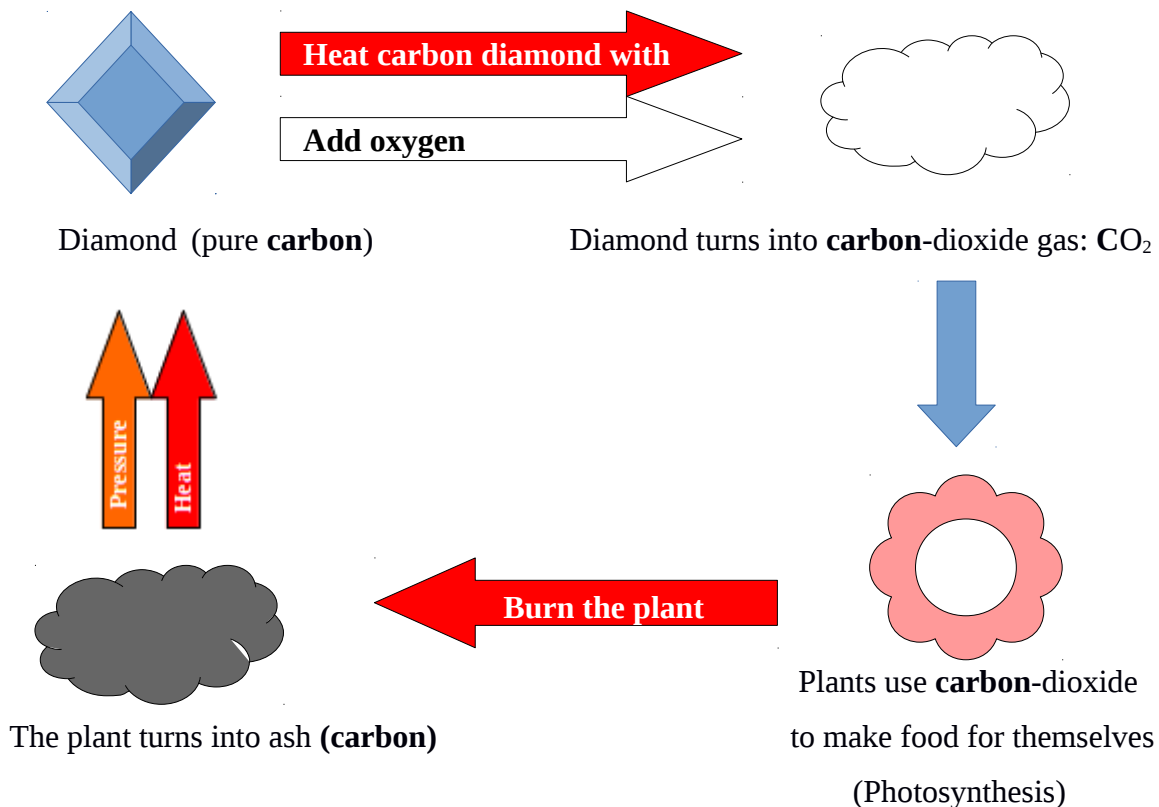
**FACT: Diamonds last a really, really, really long time.**



***Bonus information for advanced students:***

Sometimes a diamond doesn't make it billions of years. It's possible to destroy diamonds as well as create them. The carbon in the destroyed diamond can be used by plants and turned back into diamond. See the graphic for more information.

- ◆ Diamonds can **burn**, turning into carbon dioxide



**Fun fact:** Scientists have turned peanut butter into diamond! Anything carbon-based (plant or animal) can be turned into a diamond with heat and pressure!

Diamonds are a beautiful and useful part of the graphite/carbon rock cycle—they aren't indestructible but they are a nearly-forever stone.

## The Scientific Method

The scientific method is a way scientists (and anyone!) can test new ideas. Here are the steps:

1. **Observe** (Look around and find something interesting)
2. Ask a **question** about the thing that interests you.
3. Make a guess about what will happen (Form a **hypothesis**)
4. **Experiment** or test your guess
5. Check and **record** your results
6. Come to a **conclusion**. Was your guess right?
7. (Optional) Change something and try again!

- ◆ What are some questions Tracy wanted answered in this story?
- ◆ Do you think he used the scientific method to answer them? Why or why not?
- ◆ What are some questions *you* have?
- ◆ How could you use the scientific method to answer them?

Consider filling out the following questions as a class after discussing the **chemistry** and **rock cycle** sections of this guide above:

1. What did Tracy **observe** about graphite and diamond:

---

(Sample answer: They were made of the same stuff—carbon.)

2. What **question** do you think he had about this observation:

---

(Sample answer: Can graphite be turned into diamond?)

3. From this question, can you form a **hypothesis** or guess for Tracy:

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(A: Graphite can be turned into diamond if you mimic the conditions it's formed in the earth.)

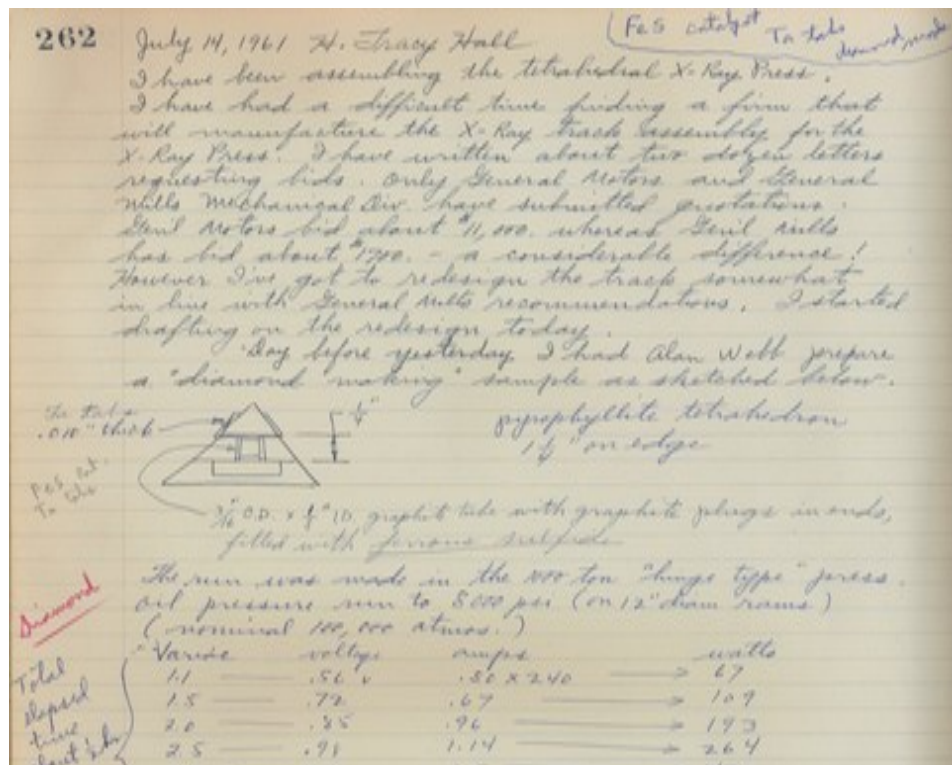
4. How did Tracy **experiment** on or test his guess?

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(A: He built machines to apply heat and pressure like might be found in an underground volcano.)

5. How do you think Tracy **recorded** his results?

(A: He recorded results in his scientific journal. The following picture from one of his science notebooks)



6. Was Tracy's guess correct? What was the **conclusion**?

(Yes! He did turn graphite into diamond!)

### Bonus activity:

Consider watching the YouTube video Hannah Holt created about testing the Scientific Method and her cat: <https://www.youtube.com/watch?v=uULbcvLeD2I>





# Social Studies

## Developing resilience

Tracy had many problems outside his control:

- ◆ His family didn't have much money.
- ◆ He had more questions than the adults in his life could answer.
- ◆ He felt unsafe at his school.
- ◆ When he grew up, his boss didn't initially believe in Tracy's idea.

Did Tracy give up when things were hard? (No!)

Encourage children to think about a struggle they face. Have children write or draw a problem/solution statement. (For young children, you might have them to choose from a list of solutions like sharing, make a deal, talking it out, walking away, etc.)

I get frustrated when...	One way I can tackle this problem is to...
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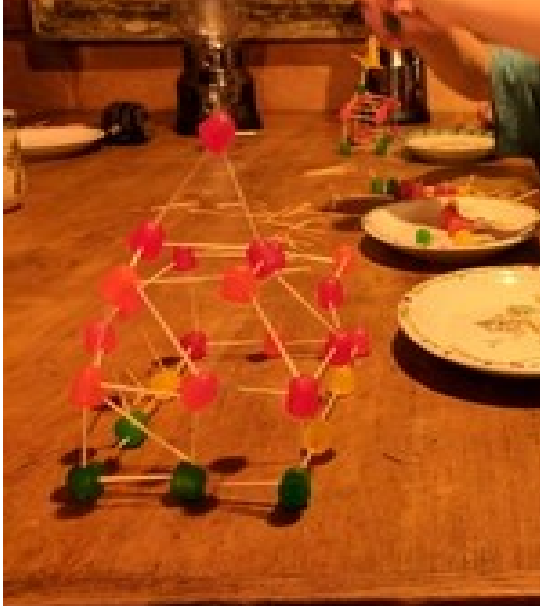
### **Bullying**

*As a child, Tracy had a problem with bullying. Tracy lived in a time when bullying wasn't well understood or even recognized. Emphasize to children that if they experience physical or emotional threats or abuse, they should contact a trusted adult. Building resilience doesn't mean you have to suffer alone. Have children draw or write someone they would tell if they feel unsafe.*

An adult I trust is...
------------------------

**Bonus activity:**

Building gumdrop resistance towers. Explain to students that Tracy had to become resilient like a diamond to overcome his challenges. One way to become more resilient is to try new things. Try making a structure out of something new.



Supplies needed:

- ◆ gumdrop candies
- ◆ toothpicks

Have children try to build a tower first by just stacking one gum drop on top of the other like this...



Ask how high they can build this way? (Hint, not very high)

Now, let them build as high as they can by building a wider base in more directions like the picture above. How high can they build this way? (Hint, much higher)

Explain that like the towers, the more directions tried and the more connections made, the stronger the solution usually is. By trying new things and asking other people for help, students can become stronger, more resilient, and stretch further than before—just like a diamond!

