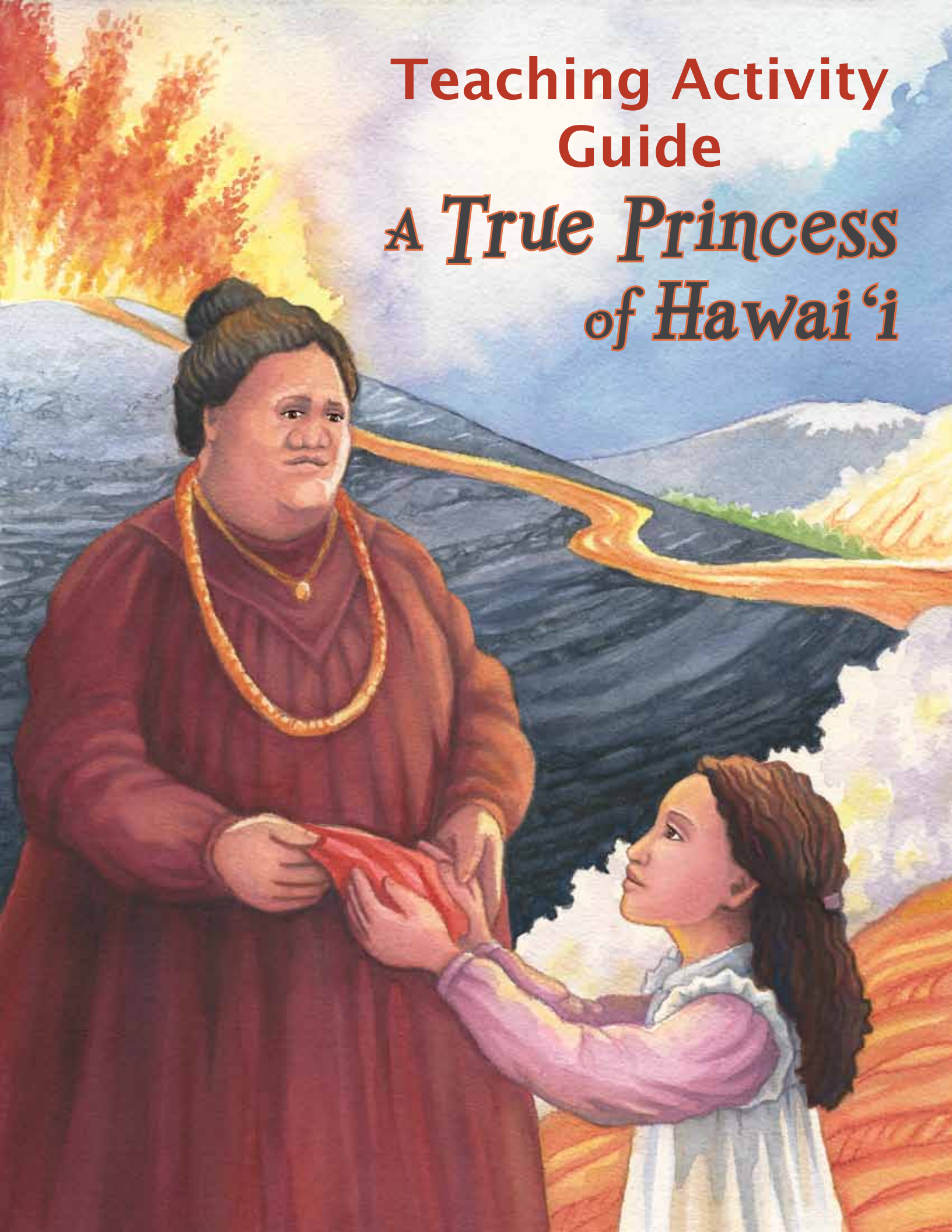


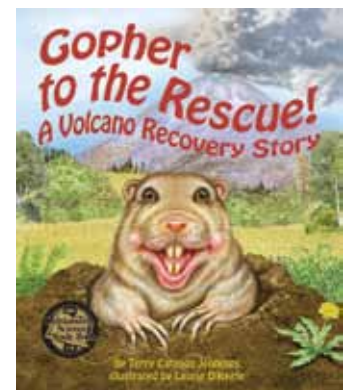
**Teaching Activity  
Guide**  
***A True Princess  
of Hawai'i***



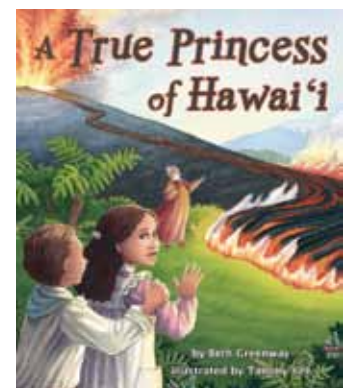
# Table of Contents

---

- 3 How to Use This Activity Guide (General)
- 4 What Do Children Already Know?
- 5 Pre-Reading Questions
- 6 Cross-Curricular Vocabulary Activities
- 7 Word Bank
- 8 Cross-Curricular Silly Sentences
- 9 Language Arts: Sequence Sentence Strips
- 11 Word Search
- 12 Understanding Volcanoes
- 15 Thinking it Through: Understanding Volcanoes
- 16 Science Journal (Vocabulary)
- 18 Math: Measuring (compare & contrast)
- 19 Maps
- 20 Coloring Pages
- 23 Answers
- 24 Appendix A—"What Children Know" Cards
- 25 Appendix B—Vocabulary Cards



Check out this other volcano-related title that may also be of interest.



Copyright 2017 © Arbordale Publishing  
These activities may be copied for  
personal and non-commercial use in  
educational settings.  
[www.ArbordalePublishing.com](http://www.ArbordalePublishing.com)

Arbordale Publishing  
Mt. Pleasant, SC 29464



# How to Use This Activity Guide (General)

---

There are a wide variety of activities that teach or supplement all curricular areas. The activities are easily adapted up or down depending on the age and abilities of the children involved. And, it is easy to pick and choose what is appropriate for your setting and the time involved. Most activities can be done with an individual child or a group of children.

**For teachers in the classroom:** We understand that time is at a premium and that, especially in the early grades, much time is spent teaching language arts. All Arbordale titles are specifically selected and developed to get children excited about learning other subjects (science, geography, social studies, math, etc.) while reading (or being read to). These activities are designed to be as comprehensive and cross-curricular as possible. If you are teaching sentence structure in writing, why not use sentences that teach science or social studies? We also know and understand that you must account for all activities done in the classroom. While each title is aligned to all of the state standards (both the text and the For Creative Minds), it would be nearly impossible to align all of these activities to each state's standards at each grade level. However, we do include some of the general wording of the CORE language arts and math standards, as well as some of the very general science or social studies standards. You'll find them listed as "objectives" in italics. You should be able to match these objectives with your state standards fairly easily.

**For homeschooling parents and teachers in private schools:** Use as above. Aren't you glad you don't have to worry about state standards?

**For parents/caregivers:** Two of the most important gifts you can give your child are the love of reading and the desire to learn. Those passions are instilled in your child long before he or she steps into a classroom. Many adults enjoy reading historical fiction novels . . . fun to read but also to learn (or remember) about historical events. Not only does Arbordale publish stories that are fun to read and that can be used as bedtime books or quiet "lap" reading books, but each story has non-fiction facts woven through the story or has some underlying educational component to sneak in "learning." Use the "For Creative Minds" section in the book itself and these activities to expand on your child's interest or curiosity in the subject. They are designed to introduce a subject so you don't need to be an expert (but you will probably look like one to your child!). Pick and choose the activities to help make learning fun!

**For librarians and bookstore employees; after-school program leaders; and zoo, aquarium, nature center, park & museum educators:** Whether reading a book for story time or using the book to supplement an educational program, feel free to use the activities in your programs. We have done the "hard part" for you.



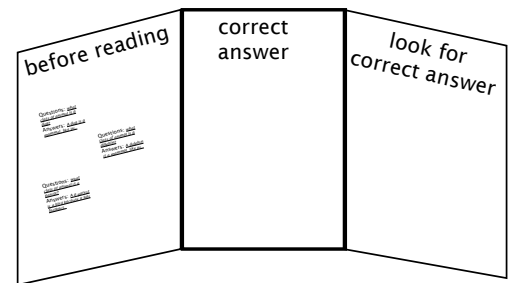
# What Do Children Already Know?

Young children are naturally inquisitive and are sponges for information. The whole purpose of this activity is to help children verify the information they know (or think they know) and to get them thinking “beyond the box” about a particular subject.

Before reading the book, ask the children what they know about the subject. A list of suggested questions is below. The children should write down their “answers” (or adults for them if the children are not yet writing) on the chart found in Appendix A, index cards, or post-it notes.

Their answers should be placed on a “before reading” panel. If doing this as a group, you could use a bulletin board or even a blackboard. If doing this with individual children, you can use a plain manila folder with the front cover the “before reading” panel. Either way, you will need two more panels or sections—one called “correct answer” and the other “look for correct answer.”

Do the children have any more questions about the subject? If so, write them down to see if they are answered in the book.



After reading the book, go back to the questions and answers and determine whether the children’s answers were correct or not.

If the answer was correct, move that card to the “correct answer” panel. If the answer was incorrect, go back to the book to find the correct information.

If the children have more questions that were not answered, they should look them up.

When an answer has been found and corrected, the card can be moved to the “correct answer” panel.

# Pre-Reading Questions

---

1. Describe how you think a princess would dress.
2. This story is based on events that took place in Hawai'i in 1880-1881. Describe what you think the real Princess Luka looked like and dressed like?
3. How do you think a Hawaiian princess would travel in the 1880?
4. What is lava and where does it come from?
5. Describe what you think lava looks like and how it moves.
6. There are five active and many dormant volcanoes in Hawai'i. Folklore was often used as a way to explain natural events. How do you think ancient Hawaiians explained why volcanoes erupted?
7. Do you know the name of the Hawaiian goddess who controls the volcanoes?
8. What does this goddess look like to people?
9. Do you think lava can destroy buildings? Why or why not?

# Cross-Curricular Vocabulary Activities

---

## *Objective Core Language Arts:*

*Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content.*

*Identify new meanings for familiar words and apply them accurately (e.g., duck is a bird & the verb to duck).*

*Use words & phrases acquired through conversations, reading/being read to, and responding to texts.*

*Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade-level topic or subject area.*

*Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences.*

*Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.*

*Use frequently occurring adjectives.*

**Vocabulary Game:** This activity is a very general idea and is designed to get children thinking of vocabulary words that will then be used as the beginning vocabulary list for a science lesson.

Select an illustration from the book and give the children a specific length of time (five minutes?) to write down all the words they can think of about the particular subject. It is helpful to project an illustration on a whiteboard. Use eBook or book preview found at [www.ArbordalePublishing.com](http://www.ArbordalePublishing.com).

The children's word list should include anything and everything that comes to mind, including nouns, verbs, and adjectives. At the end of the time, have each child take turns reading a word from his/her list. If anyone else has the word, the reader does nothing. However, if the reader is the only one with the word, he/she should circle it. While reading the list, one person should write the word on a flashcard or large index card and post it on a bulletin board or wall.

At the end, the child with the most words circled "wins." And you have a start to your science vocabulary list. Note: if a child uses an incorrect word, this is a good time to explain the proper word or the proper usage.

**Glossary/Vocabulary Words:** Word cards may be used (see Appendix) or have children write on index cards, a poster board, or on a chalkboard for a "word wall." If writing on poster board or chalkboard, you might want to sort words into nouns, verbs, etc. right away to save a step later if using for Silly Sentences (on the next page). Leaving the words posted (even on a refrigerator at home) allows the children to see and think about them frequently.

**Using the Words:** The following activities may be done all at once or over a period of several days.

- Sort vocabulary words into nouns, verbs, adjectives, etc. and write what they are on the backs of the cards. When the cards are turned over, all you will see is "noun," etc. (these can then be used for the "silly sentences" on the next page).
- After the cards have been sorted, go over the categories to ensure that all cards have been placed correctly. (Mistakes are a great opportunity to teach!)
- Choose two words from each category and write a sentence for each word.
- Write a story that uses at least ten vocabulary words from the word sort.
- Have children create sentences using their vocabulary words. Each sentence could be written on a separate slip of paper. Have children (individually or in small groups) sort and put sentences into informative paragraphs or a story. Edit and re-write paragraphs into one informative paper or a story.

**Silly Sentence Structure Activity:** This "game" develops both an understanding of sentence structure and the science subject. Use words from the "word wall" to fill in the blanks. After completing silly sentences for fun, have children try to fill in the proper words by looking for the correct information in the book.

# Word Bank

Build a word bank using words found in the story or For Creative Minds.

<b>Adjective</b>	<b>Noun</b>	<b>Verb</b>
active	ash	build
cool	boundary	erupt
dormant	caldera	form
giant	chamber	melt
hot	core	rise
large	Earth	store
liquid	eruption	vent
molten	heat	
outer	hot spot	
puzzle-like	landform	
rigid	lava	
solid	layer	
tectonic	magma	
thin	mantle	
underground	peel	
volcanic	plates	
	pressure	
	rock	
	surface	
	vent	
	volcano	

# Cross-Curricular Silly Sentences

---

1. A \_\_\_\_\_ is a \_\_\_\_\_ that \_\_\_\_\_ molten rock, or magma, up through the earth's surface.  
noun                      noun                      verb
2. \_\_\_\_\_ means that the \_\_\_\_\_ is so hot it turns to liquid.  
adjective                      noun
3. The earth's surface is made up of giant plates. These plates are the \_\_\_\_\_, \_\_\_\_\_ layer of the earth, just like an orange peel is the outer layer of the fruit.  
adjective                      adjective
4. The \_\_\_\_\_ is the layer underneath the earth's plates. It is made of mostly \_\_\_\_\_ \_\_\_\_\_.  
noun                      adjective                      noun
5. Heat within the Earth's interior \_\_\_\_\_ some of this solid \_\_\_\_\_ to form \_\_\_\_\_.  
verb                      noun                      noun
6. If \_\_\_\_\_ reaches the surface, the \_\_\_\_\_ rock is called \_\_\_\_\_.  
noun                      adjective                      noun
7. Volcanoes \_\_\_\_\_ when magma \_\_\_\_\_ to the surface.  
verb                      verb
8. Magma is stored in \_\_\_\_\_, \_\_\_\_\_ chambers beneath the earth's surface.  
adjective                      adjective
9. Over time, \_\_\_\_\_ \_\_\_\_\_ inside the magma chamber.  
noun                      verb
10. Eventually the magma \_\_\_\_\_ upward through the earth's surface in a \_\_\_\_\_ eruption.  
verb                      adjective



# Language Arts: Sequence Sentence Strips

Cut into sentence strips, laminate if desired, and place in a "center." Have children put the events in order. Children may work alone or in small groups. Cards are in order but should be mixed up when cut apart.

*Objective Core Language Arts:*

*Use temporal words and phrases to signal event order.*

*Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.*

Nani woke up and put on her fancy dress with the red petticoat.

School was cancelled because lava was flowing down the mountain.

An old woman stopped Nani and asked for a bite to eat.

Nani gave the old woman some candy to eat.

Princess Luka arrived in a boat.



Princess Luka climbed into a borrowed wagon but the horse refused to move.

Nani gave the horse a piece of candy and the horse began to move.

Princess Luka wanted a red hankie and Nani tore off a piece of her fancy petticoat.

Princess Luka tossed the piece of petticoat and something from a bottle onto the mass of hot lava.

The next morning, the lava stopped flowing and Princess Luka went home.

Nani found candy in her pocket and shared it with Keoki.

# Word Search

Find the hidden words. Even non-reading children can match letters to letters to find the words! Easy—words go up to down or left to right (no diagonals). For older children, identify the coordinates of the first letter in each word (number, letter).

	A	B	C	D	E	F	G	H	I	J
1	S	E	T	R	E	S	I	T	A	Y
2	O	B	C	M	A	T	J	Y	U	A
3	L	P	M	A	N	T	L	E	V	S
4	U	V	O	G	B	A	V	S	O	T
5	E	T	L	M	A	Q	O	T	A	E
6	F	I	T	A	M	P	L	A	V	A
7	O	S	E	G	R	O	C	K	A	R
8	M	A	N	K	I	D	A	N	L	T
9	A	H	K	I	V	E	N	T	E	H
10	N	D	O	M	T	H	O	T	I	M

MAGMA
VOLCANO
VENT
LAVA
MOLTEN
MANTLE
EARTH
ROCK

# A True Princess of Hawai'i

**vent:** where magma is erupted on to the earth's surface. On Hawaiian volcanoes, vents often open at the summit (top) and along the flanks (sides) of the volcano.

**ash:** tiny pieces of rock and volcanic glass that are exploded or carried into the air during an eruption. Ash can be carried by the wind for great distances from the vent.

**lava:** molten rock erupted at the surface. Lava cools and hardens as it flows along the ground.

**magma chamber:** a place within a volcano where magma is stored before an eruption. When pressure builds inside the chamber, magma moves to the surface, where it erupts from a volcanic vent.

**crust:** the solid, top layer of the earth, which forms the continents and the land under the oceans.

**mantle:** the layer of mostly solid rock underneath the earth's crust.

**conduit:** the path magma travels from the magma chamber to the vent. A conduit can have one direct path from the magma chamber to the surface, or it can split and lead to multiple vents.

A volcano is a vent in the Earth's surface where magma, gases, and ash erupt. It also refers to the landform constructed by erupted material. Erupting lava builds new land but volcanic explosions can destroy the area around them.

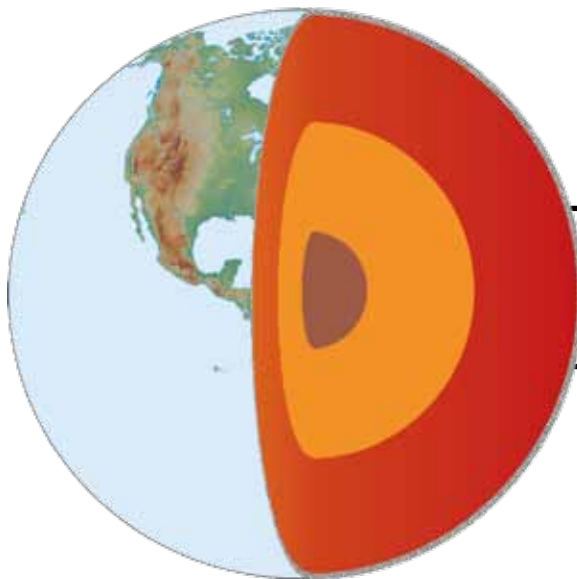
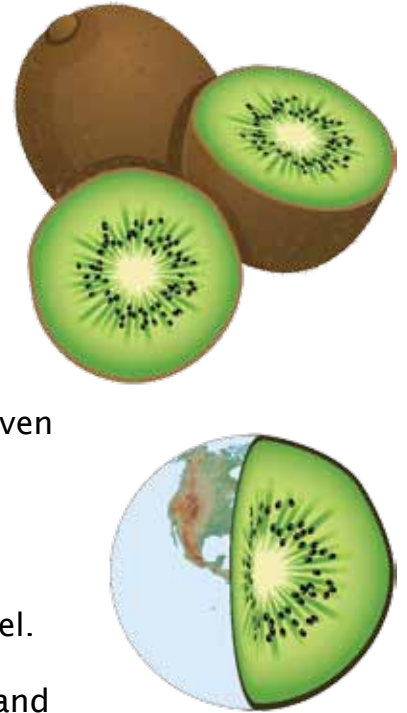
Volcanoes are active (erupting or expected to erupt in the near future), dormant (like sleeping), or extinct (not expected to erupt again).

To understand volcanoes, we have to understand a little bit about the Earth. The Earth is made up of four layers. It might help to imagine the Earth as a kiwi fruit.

The outer layer is the Earth's *crust* (represented by the kiwi's skin). It is very thin compared to everything else. If you could dig very deep, you could dig through the crust. But nobody can dig that deep—not even oil drillers or miners.

The next layer is the Earth's *mantle* (represented by the kiwi's green flesh). It is a dense, hot layer of semi-solid rock.

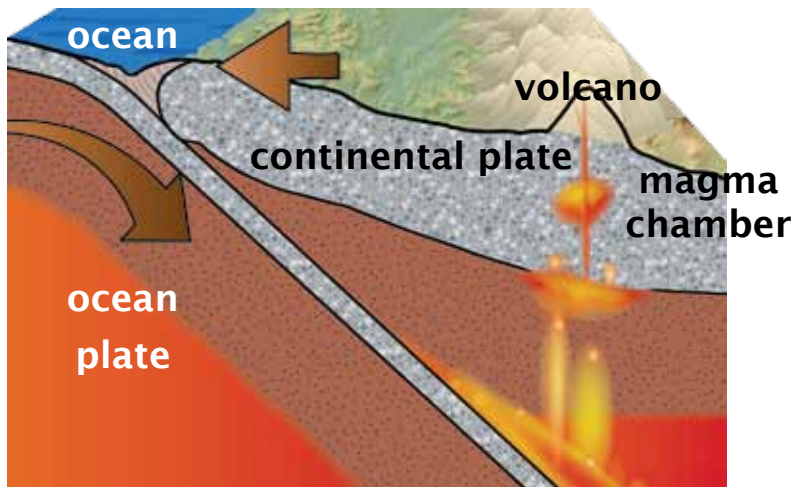
The Earth's two inner layers (called the *core*) are mostly iron and nickel. The *inner core* (represented by the white center of the fruit) is solid. The *outer core* (represented by the black seeds) is in between liquid and solid—more like an oatmeal mush (molten).







- The crust is only 5 to 25 miles (8 to 40 km) thick.
- The mantle is about 1800 miles (2900 km) thick.
- The inner core is 770 miles (1250 km) thick.
- The outer core is 1400 miles (2200 km) thick.



The Earth's crust and the top part of the mantle are broken into puzzle-like pieces called **tectonic plates**. These plates glide past, pull away from, or move toward each other.



-  Earth's crust
-  top (uppermost) part of mantle
-  mantle
-  water melting rocks/magma

As the cooler and denser oceanic plate sinks into the warmer mantle of the continental plate above, temperatures are hot enough to drive water out of the plate.

The water causes part of the mantle to melt—making **magma**. Since magma is less dense than the rock around it, it moves up—just as a balloon floats up into the air.

As it moves up, it melts the solid rock in the Earth's crust along the way.

The magma pools as a **magma chamber**. Gases in the magma can cause it to erupt, sometimes explosively!

The red lines show where the plates meet. What do you notice about the location of most volcanoes (shown in circles) and the location of the plates?

There are some areas that are not along plate boundaries where magma erupts at the Earth's surface. These places are called **hotspots**. As the plate moves over the hotspot, a chain of volcanoes sometimes forms, such as the Hawaiian Islands.

Volcanoes also form where two plates pull apart. These volcanoes may make mountain ranges and are called rift volcanoes.

Once magma reaches the Earth's surface, it's called **lava**.

Most of the world's volcanoes are along plate boundaries, like the boundary around the Pacific Ocean. This area is known as the Ring of Fire.



# Thinking it Through: Understanding Volcanoes

---

1. Are the volcanoes in Hawai'i from plate boundaries or hotspots? Where did you find that information or how do you know?
2. If a hotspot is like a thin area in the Earth's crust where magma bursts through, can you think of anything in your daily life that reminds you of that? See how many examples of things you can come up with. (Note to adults: exploding soda, something gushing or popping, etc.)
3. Do you think volcanoes can be underwater? Why or why not? (Note to adults: One of the five active volcanoes in Hawai'i is underwater.)
4. An erupting volcano is an active volcano that is erupting. A dormant volcano is an active volcano that is not currently erupting. You might say that it's sleeping. An extinct volcano is one that has not erupted for over 10,000 years and is not expected to erupt again. If you were to live near a volcano, which type of volcano would you like it to be: erupting, dormant or extinct? Why?
5. Do you think there are any erupting volcanoes now? Why or why not? (Note to adults: you can find information on erupting volcanoes at [https://www.volcanodiscovery.com/erupting\\_volcanoes.html](https://www.volcanodiscovery.com/erupting_volcanoes.html).)
6. Are there any volcanoes near where you live?
7. If a scientist who studies biology is called a biologist and a scientist who studies geology is called a geologist, what do you think a scientist who studies volcanoes might be called? (volcanologist)
8. The story of Princess Luka visiting Hilo and stopping the lava from destroying the town is based on an actual event. Do you think she really stopped the lava or do you think it was a coincidence? Why or why not.
9. Do you think scientists can stop lava from flowing? How or why not?

# Science Journal (Vocabulary)

---

## Lava

my definition

my drawing

## Volcanic Ash

my definition

my drawing

# Vent

my definition

my drawing

# Magma Chamber

my definition

my drawing

# Math: Measuring (compare & contrast)

---

## *Objective Core Mathematics: Elapsed time*

Time line of Events based on local newspaper accounts:

early May 1880: eruption at the top (summit) of Manua Loa

November 5, 1880: eruptions begin from several vents lower on the mountain

by early December, 1880: flow is active from only one active vent

March 25, 1881: lava was only 7 miles from Hilo and still advancing

June 1, 1881: lava was only 5 miles from Hilo

The lava flow eventually reached the town and crossed several roads.

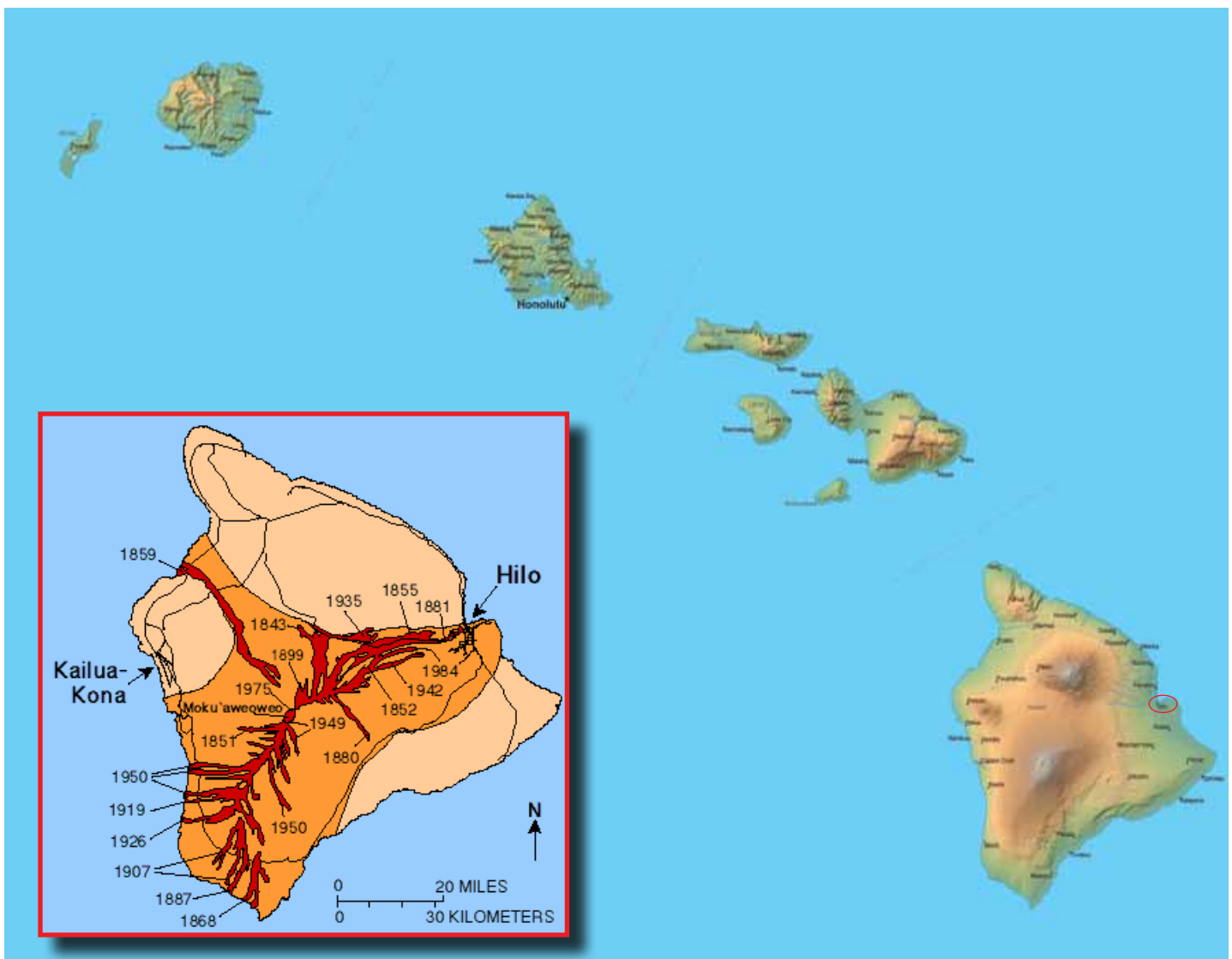
August 10, 1881: the lava flow stopped

1. How many months passed from the time the volcano first erupted until the lava stopped in Hilo?
2. If the eruption started at the top of the mountain in May and the eruptions started coming out of the vents in early November, how many months was it just erupting at the top of the mountain?
3. About how many weeks/months were the eruptions coming out of multiple vents?
4. Approximately (rounding is ok) how many weeks did it take the lava to move from 7 miles outside of Hilo till 5 miles outside of Hilo.
5. If the flow stopped the day after Princess Luka visited Hilo, what was the date of her visit?



# Maps

1. Looking at the map of Hawai'i below, describe what the geography of the state looks like.
2. Describe how the state of Hawai'i is the same as or different than the state in which you live. If you live in Hawai'i, pick another state for comparison.
3. Find Hilo (circled in red) on the Big Island on the map, below.
4. Look at the insert map (from USGS) showing the various lava flows from Mauna Loa. Can you find the lava flow from 1881?



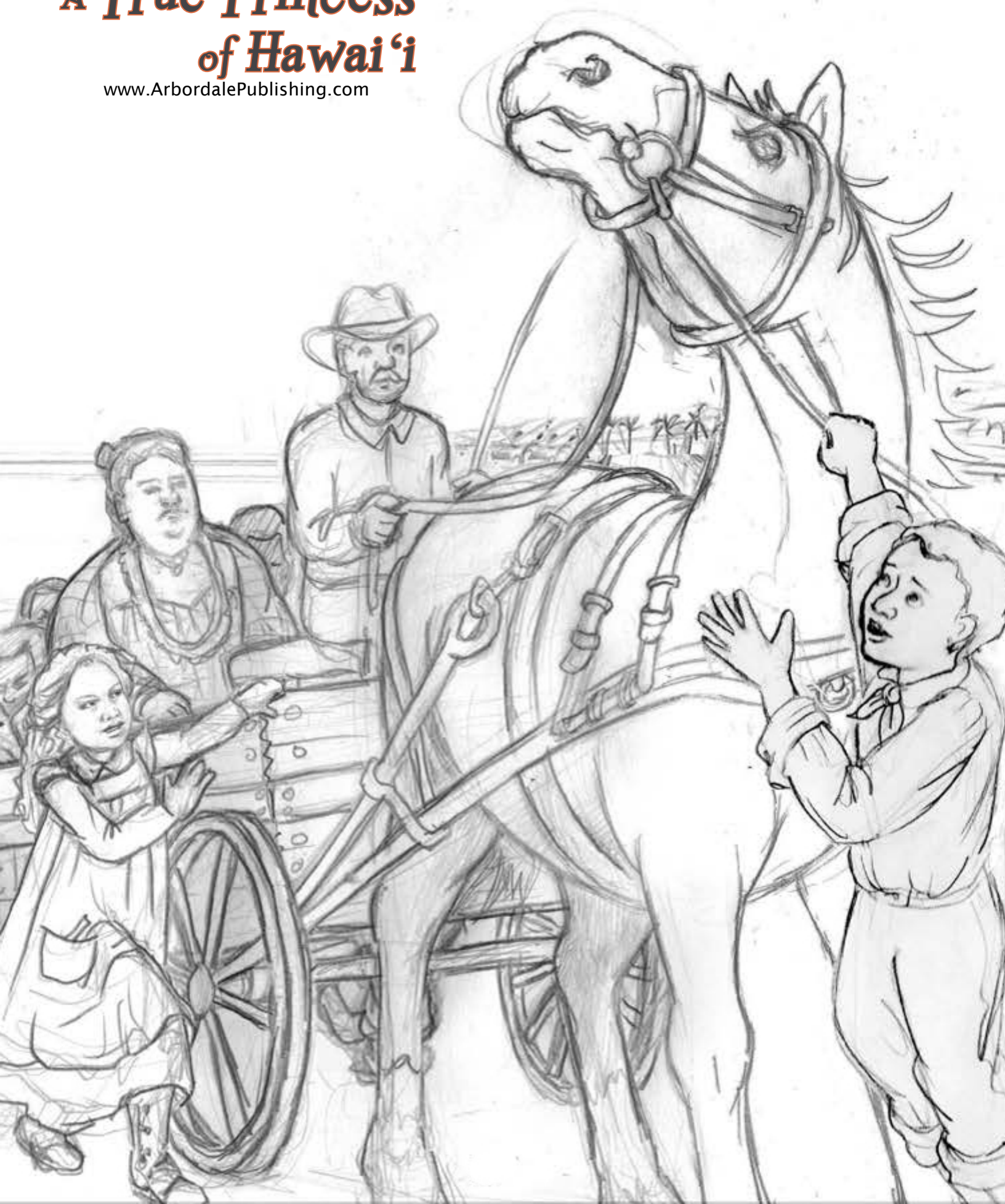
# A True Princess of Hawai'i

[www.ArbordalePublishing.com](http://www.ArbordalePublishing.com)



# A True Princess of Hawai'i

[www.ArbordalePublishing.com](http://www.ArbordalePublishing.com)







***A True Princess  
of Hawai'i***

[www.ArbordalePublishing.com](http://www.ArbordalePublishing.com)

# Answers

## Silly Sentences

A volcano is a landform that vents molten rock, or magma, up through the earth's surface. Molten means that the rock is so hot it turns to liquid.

Volcanoes often look like mountains.

The earth's surface is made up of giant plates. These plates are the outer, rigid layer of the earth, just like an orange peel is the outer layer of the fruit.

The mantle is the layer underneath the earth's plates. It is made of mostly solid rock.

Heat within the Earth's interior melts some of this solid rock to form magma.

Magma is less dense than the solid rock, so it rises toward the surface.

If magma reaches the surface, the molten rock is called lava.

Volcanoes are most common on the boundaries between the earth's plates.

Volcanoes can also form over hot spots, especially hot areas in the earth's mantle.

Magma formed at a hot spot can rise through the earth and reach the surface.

Volcanoes form when magma erupts to the surface.

Magma is stored in large, underground chambers beneath the earth's surface.

Over time, pressure builds inside the magma chamber.

Eventually the magma vents upward through the earth's surface in a volcanic eruption.

	A	B	C	D	E	F	G	H	I	J
1										
2				M						
3			M	A	N	T	L	E		
4		V	O	G			V			
5			L	M			O			E
6			T	A			L	A	V	A
7			E		R	O	C	K		R
8			N				A			T
9					V	E	N	T		H
10						H	O	T		

MAGMA	2,D
VOLCANO	4,G
VENT	9,E
LAVA	6,G
MOLTEN	3,C
MANTLE	3,C
EARTH	5,J
ROCK	7,E





## Appendix B—Vocabulary Cards

**lava**

**eruption**

**magma**

**mantle**

**volcano**

**vent**