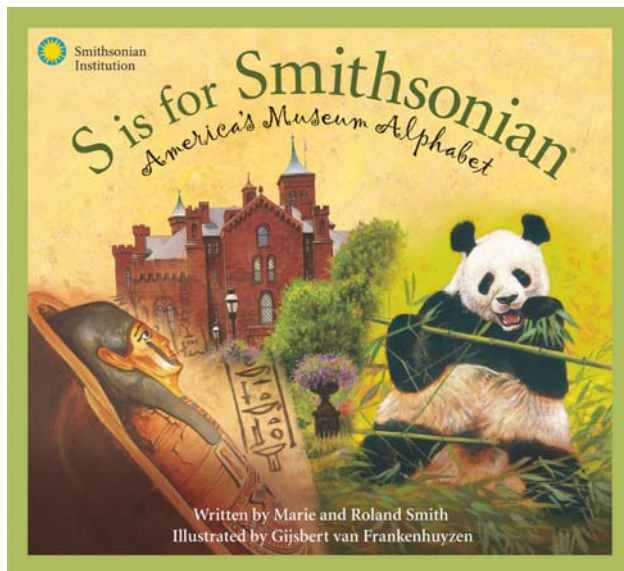


# Teacher's Guide



## **S is for Smithsonian America's Museum Alphabet**

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## Before reading!

### *Anticipation Guide*

Answer T for true or F for false to each of the statements. You may not know any or all of the answers, but take your best guess. When you finish the book you can check your answers.

- T    F    The Smithsonian is more than one museum.
- T    F    The Smithsonian has a zoo.
- T    F    There are over 6,000 volunteers helping at the museums.
- T    F    The Smithsonian began as a gift from an American hero.
- T    F    The Smithsonian has an art museum.
- T    F    No one knows why the gift was given to start the Smithsonian.
- T    F    The Smithsonian has an airplane and a car in it.
- T    F    There are mummies in the Smithsonian.
- T    F    The Smithsonian is in California.
- T    F    There is a giant squid model in the Smithsonian.
- T    F    The Smithsonian has a pair of Dorothy's ruby slippers.
- T    F    It is free to get into most of the Smithsonian museums.
- T    F    It would only take a day or two to see all of the exhibits.

### ***Web sites and Questions***

As you read this book you can also take a virtual tour of the many museums. You can play online games, share some of your own ideas, use your imagination in developing a story, take a poll, and practice reading for comprehension.

Go to <http://www.si.edu/> The tool bar at the top will help you visit all of the Museums and Exhibits. Bookmark/add to favorites all museums if you like; you will be visiting most of them as you work through the book and these experiences.

List a few questions you have about the Smithsonian:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

## During the Reading

### *A is for aviatrix and airplane*

<http://www.ueet.nasa.gov/StudentSite/vocabulary.html>



Use the Web site to find the definitions to each of the following. Don't worry; the definitions are short but important to all true pilots. Amelia Earhart was an expert aviatrix and knew all of these very well!

**Aviation**

**Aerodynamics**

**Air**

**Airfoils**

**Ailerons**

**Elevators**

**Fan**

**Fin**

**Flaps**

**Fuselage**

**Gas Turbine**

**Lift**

**Pitch**

**Roll**

**Rudder**

**Slats**

**Spoilers**

**Tail**

**Thrust**

**Turbine**

**Yaw**

<http://www.nasm.si.edu/exhibitions/>

Explore and view the airplanes they have on exhibit now and have had in the past. You can see space rockets, too.

## ***B is for Band***

<http://www.dsokids.com/listen/instrumentlist.aspx>

Explore this site with a partner; take turns trying to stump one another as you listen to different instruments of a band and orchestra. Can you guess what each instrument is?



Choose a favorite instrument from one family and another instrument from a different family. Compare and contrast these two instruments.

Describe your first favorite

Describe your second favorite

Explain how these two instruments are different.

## ***B is also for Bracero***

Explore the Bracero Program. <http://www.farmworkers.org/bracerop.html>

This is a program with its ups and downs, good and bad. What types of changes would help the men and women who help the farmers maintain and pick their crops? Share a few of your ideas.

- 1.
- 2.
- 3.



## ***C is for Castle***

Decide on what you would like to know about the Smithsonian. The Castle is the Smithsonian's official information center and can answer any of your questions. After you finish the book and these experiences you will write an e-mail asking any of the questions left

unanswered and sharing what you enjoyed. E-mail your questions to [info@si.edu](mailto:info@si.edu).

Record eight questions here.

1.

2.

3.

4.

5.

6.

7.

8.

## ***D is for Dollhouse***

<http://americanhistory.si.edu/index.cfm> Search: Faith Bradford Dollhouse. Take a tour of this amazing dollhouse and draw a replica (a picture that is like another) of your favorite floor or furnishings.

***D is also for Design***

<http://cooperhewitt.org/EXHIBITIONS/>

Begin your own design career.

1. Combine a square, trapezoid, equilateral triangle, and one other shape.
2. Add lines and points with color to complete your design.

## ***E is for Elephant***

What types of animals would you like to see at the National Museum of Natural History?

<http://www.mnh.si.edu/panoramas/htmlVersion/01L.html>

You can take a virtual tour of the Rotunda and see the grand African Elephant. Hint: Be patient; it takes just a minute or two to load.

<http://www.mnh.si.edu/panoramas/htmlVersion/05L.html>

Take a look at Dinosaur Hall, too!

[www.AMNH.org/ology](http://www.AMNH.org/ology)

A. Explore the Biodiversity button.  
Click on Bio-Benefits.

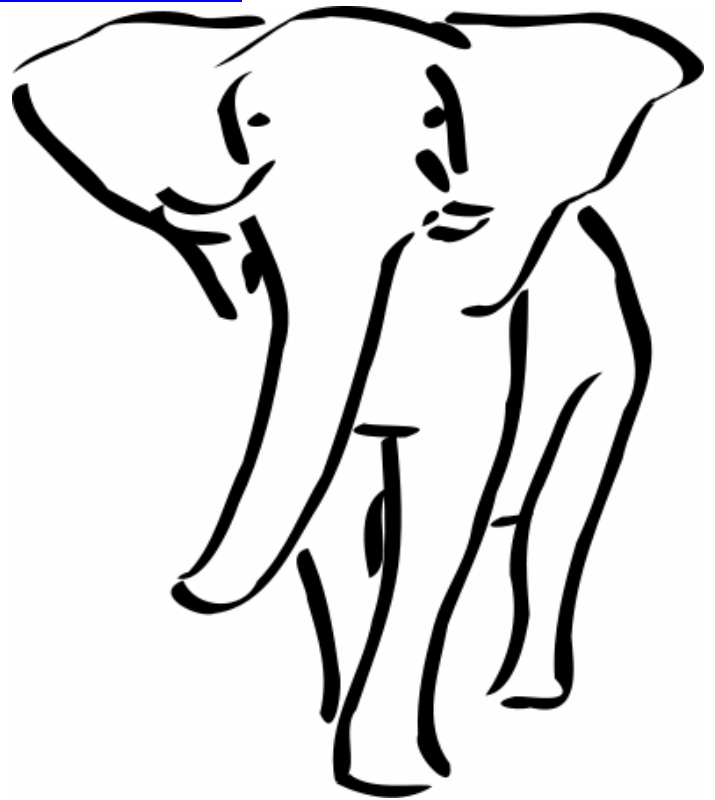
Share three “benefits” of biodiversity.

- 1.
- 2.
- 3.

B. Click Bio-Poll to take the survey.

C. Explore any of the other buttons and share any new ideas and questions you may have.

- 1.
- 2.
- 3.
- 4.
- 5.



## ***F is for First Ladies***

You can view a few of the gowns at

<http://americanhistory.si.edu/exhibitions/index.cfm>

Scroll down, then click on First Ladies at the Smithsonian.

Design a new gown for her to wear to a presidential party.

After you sketch the design use colored pencils to fill in the details. You can go to your local library and scan your picture and send it to the Smithsonian; maybe they will forward your design to the First Lady.

***F is also for***



<http://americanhistory.si.edu/starspangledbanner/>

A. Click on the Song button to learn more about Francis Scott Key and the lyrics. Answer the following questions using the book and the site.

1. What year did he write the poem?
2. Where was Francis Scott Key when he wrote the national anthem?
3. Why was he there?
4. What is a rampart?
5. How many verses are there?
6. During which war did the song become truly special?
7. What year did the song become the national anthem?

B. Sing along with all four verses by pressing the red “Sing” link. Get some of your family and friends to sing, too.

C. Click on Interact; explore the highlighted circles to see some of the specific information about a real Civil War flag.

## ***G is for George Catlin a famous American painter and Grand Salon***

What types of art did George Catlin create? \_\_\_\_\_

What was his inspiration? \_\_\_\_\_

[http://americanart.si.edu/exhibitions/archive/2009/grand\\_salon\\_installation/](http://americanart.si.edu/exhibitions/archive/2009/grand_salon_installation/)

View the newest exhibits in the Grand Salon. Click on “Explore all seventy paintings in the Grand Salon installation on [Flickr](#)”

Explore a few of the paintings that look interesting to you. Choose one to evaluate using the elements of art.

Line – straight, squiggly, horizontal, zigzag, etc.

Shape – lines connected to form two dimensions

Form – three-dimensional projection of space; the organization of the work

Space – distance between points – limited or shallow, extended or deep

Value – amounts of dark and light

Texture – how the surface feels or looks

Color – identifies objects, creates mood, and affects emotions



## ***H is for the Hope Diamond***

Another rare diamond has been added to the Museum of Natural History.

<http://www.mnh.si.edu/exhibits/wittelsbach/index.html>

Explore all the parts of this site, especially the picture.

Gather information just like a news reporter. Find the answers to the “5 W’s” and the “how” about this new exhibit.

What:

When:

Where:

Who:

Why:

How:

B. Compare the Hope Diamond (use the information from the book) with the new exhibit. Think about the 4 C’s of diamonds: Cut (shape), Clarity (flaws or flawless), Color, and Carats (weight).

What do they have in common?

How are they different?

## ***I is for Insect Zoo***



[http://www.si.edu/Encyclopedia\\_SI/nmnh/buginfo/funfacts.htm](http://www.si.edu/Encyclopedia_SI/nmnh/buginfo/funfacts.htm)

Fun Facts about Bugs will help you create a funny true and false quiz for your friends and family.

A. Create questions and answers here and then ask your friends, “True or False.”

Here’s one to get you started:

Ants can lift and carry more than 100 times their weight. False, 50 times



- 1.
- 2.
- 3.
- 4.
- 5.

B. Choose one or two of the facts and create a cartoon for your friends and family to enjoy as well.

## ***J is for Justice Thurgood Marshall***

Justice Marshall was given the Presidential Medal of Freedom after his death. This medal is given to any person who gives “an especially meritorious [praiseworthy] contribution to the security [safety] or national interests [things we care about] of the United States, world peace, cultural or other significant [major] public or private endeavors [actions].”

Each year the president selects people from science, politics, entertainment, sports, and many more areas to become recipients [receivers].

Nominate someone you admire or know who gives a great praiseworthy contribution to the safety or helps with the things the United States cares about or helps with world peace, and gives to cultural or major public or private actions.

Send your nomination to the President’s Office at:

<http://www.whitehouse.gov/contact>.

Have someone help you proofread your work; use capitals, spelling, punctuation, etc. – this is the president’s office!

Include:

His or her name

What he or she has done for our country

When this service took place (if currently, share a specific date)

Why you believe he or she has earned this honor

## ***K is for Kite***



You can make your own Diamond Kite just like Paul Garber and hold your own Kite Festival. Get your parents or teacher to help you gather the materials and create your kite.

<http://www.skratch-pad.com/kites/make.html>

*Sketch a picture here before you place it on your kite.*

*During the kite festival, see who can fly the kite:*

- *the highest*
- *keep it in the air the longest*
- *loop the best*
- *complete any tricks*

## ***L is for Lunch Counter***

Discrimination has many definitions. One is: an action based on inaccurate and/or exaggerated information. The college students in this true story just wanted to eat lunch at the counter in the restaurant. Because their skin was a different color and they were African-Americans they were arrested; this is discrimination. Talk with a partner and/or your parents and share what causes discrimination and what are some of the effects.

***Causes***

***Effects***

**Discrimination**

***You can make a difference, and with help from family and friends you can start now!***

Share one idea you have for stopping discrimination. Share it with a friend, then pair up and share each other's ideas. Do this with two more pairs. By the time you finish you will have several ideas and can begin changing the world right away!

Your idea:

Others' ideas:

## ***M is for Mummy***

What does the book share about animal mummies?

- 1.
- 2.
- 3.

Draw a picture of an animal sarcophagus [a stone coffin]. Don't forget the elaborate colors, just like Egypt.

## ***M is also for Modern Art and Music***

Sometimes it's important to listen. Too many times we feel like we always have to act and do. Take some time to sit and listen to artists and some of the music on these sites. Respond to some of the ideas and music using a journal format. Write down anything you find interesting or important; just share your ideas.

### ***Modern Art***

<http://hirshhorn.si.edu/educate/columns.asp?key=51>

Explore this Web site on a Friday to listen to a Gallery Talk. Click on any of the buttons and the artist will talk about their work and their lives. If you can't explore on a Friday, there are many podcasts to listen to as you view the art. Choose which artist you would like to hear, and listen to their story.

### ***Music***

<http://americanhistory.si.edu/collections/music.cfm?key=1228>

Choose from many different styles of music. You can download any of the titles and listen to them.

Here are just a few:

- *Freedom Songs of the U.S. Civil Rights Movement*
- *African-American Musical Traditions of New Orleans*
- *Music of Hawaii*
- *"White House Blues": Music of American Politics*
- *"Música Latina": Latino Music in the U.S.*
- *Songs of the Civil War*



## ***N is for Nestwatch***



You can be an ornithologist and ecologist just like Dr. Marra. Get up early one morning and take a long look out your window. What types of birds do you see? Sketch a few as you watch and see if your parents or teachers can help you identify the birds' names. Web sites might help you as well.

Take a look at a bird not from your area.

<http://nationalzoo.si.edu/Animals/Birds/ForKids/>

Explore the fact sheets and select a bird you would like to learn more about. Record six interesting and important facts below.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

## ***N is for Nestwatch continued***

Use your facts to write a short Praise Poem about your bird. Remember that poetry is meant to use only a few words to say a great deal in its lines and stanzas. Also poetry does not have to rhyme, it just has to have a pattern and rhythm. Try to use figurative language like metaphors (compare two unlike things) and alliteration (repetition of the first consonant, ex: tall tower). Also it is important to use words that will create an image (imagery).



### **Praise the Bald Eagle**

**Praise the white head and black body  
muscular and majestic  
Praise our symbol of freedom  
endangered no more**

**Soaring, gliding, towering  
cliff-dwelling, water-loving  
Praise the bald eagle  
bird of prey, bird of peace**

Play *Nest Game* and/or the *Bird Bill Matching Game* AND don't forget to take a look at *What's in a Name* at this same Web site; so much fun!!

<http://nationalzoo.si.edu/Animals/Birds/ForKids/>

## ***O is for Owney, the stray dog and the Postal System***

<http://postalmuseum.si.edu/>

Go to Activity Zone!



1. Online Coloring Book—Color a picture of Owney using computer paint and color tools and answer a question with the picture. If you read the book information carefully you will be able to answer the question right away. You can even print out your picture after it's colored.
2. Word Search—Scroll down and find Owney. Play this word search developed just for this fun-loving and memorable dog. There are many other stamp topics, too, that are word searches.
3. Wallpaper Downloads—Use the sketch of Owney for your computer background screen, if you like; there are also other stamp sketches.
4. Jigsaw puzzles—Try your puzzle skills—the Pony Express is the easiest of the six and the Cancelling Machine is the most difficult.
5. Letter Mania—If you like Hangman, you'll love this game.
6. Scramble—Try this game where four different types of stamps are scrambled similar to a Rubik's Cube. There are many levels from Beginner to Advanced.
7. Write a Letter—You can create your own stationery using this link. After you have created your own stationery print it out and write your own letter to a friend or family member. Go to the post office window; the postmaster will let you choose the stamp you want—there are many different types of stamps to choose from. You could even use a combination of stamps.

If you are interested in creating your own stamp collection you can scroll down the main site to Stamp Collection. There are step-by-step instructions for how to start.

## ***P is for Peacock and Patent Office***

<http://www.asia.si.edu/exhibitions/online/peacock/default.htm>

Take a closer look at all of the items in the Peacock Room in the Freer Gallery of Art. Answer each of these questions when you finish the tour. You can even take a Virtual Tour of the room.

1. What is the woman wearing in the picture?
2. Which Asian country does the collection represent?
3. Where was the Peacock room originally?
4. Who was the artist of the Peacock room?
5. How much was actually paid to the artist?
6. What year was the room completed?
7. When was the room given to the museum?
8. What did the author call this piece of work?
9. Who was this work completed for?
10. Who donated the work to the museum?



The Patent Office is where inventors can send in their ideas and get legal credit for them. If their patent is approved, they are the only ones with the legal right to the idea.

What ideas do you have for inventions?

## ***Q is for Quilt and the National Quilt Collection***

Write the question that would match the answer given below.

\_\_\_\_\_ ?  
Noblesville, Indiana

\_\_\_\_\_ ?  
Generals

\_\_\_\_\_ ?  
Mary Rockford

\_\_\_\_\_ ?  
Union

\_\_\_\_\_ ?  
1940

\_\_\_\_\_ ?  
Eugene Teter

[http://americanhistory.si.edu/collections/group\\_detail.cfm?key=1253&qkey=169](http://americanhistory.si.edu/collections/group_detail.cfm?key=1253&qkey=169)

A. View any or all of the 40 quilts in the Smithsonian's Collection. Some have pictures of items but most are geometric designs.

B. Explain which quilt is your favorite and why.

C. In a discussion compare and contrast favorites with friends or family.

D. Design your own quilt. Choose a few geometric shapes and create a pattern or choose an object that is important to you.

Don't forget to use complementary colors: will your quilt use cool colors like blues, greens, and purples or warm colors like reds, oranges, and yellows?

## ***R is for Road and Red***



<http://americanhistory.si.edu/exhibitions/exhibition.cfm?key=38&exkey=892>

View Dorothy's Slippers, Mr. Rogers' sweater, and even Kermit the Frog.

The Treasures of American History has all types of items that our country wants to keep safe and secure.

With a partner or small group create a list of current items from television or the movies that you believe are an important part of our American culture. Don't forget to explain why you chose the item.

1. \_\_\_\_\_ because

2. \_\_\_\_\_ because

3. \_\_\_\_\_ because

4. \_\_\_\_\_ because

5. \_\_\_\_\_ because

**S is for**



What if you had one hundred bags of gold, each weighing pounds? How much money would you have?

and five  
twenty

To calculate this amount you need the current price of gold (as of January 23, 2010 the current price was \$1,131.00/ounce) and some simple math.

Step One: There are 16 ounces in a pound so multiply the price (\$1,131) by 16 for the cost of one pound of gold.

Answer \_\_\_\_\_

Step Two: Multiply this number by 20 for the price of each bag of gold.

Answer: \_\_\_\_\_

Step Three: Multiply this number by 105 for the total price of all the bags.

Answer: \_\_\_\_\_

What if you had to give all of the gold away to only one organization?  
Which organization would receive this donation?

Organization \_\_\_\_\_

Now meet with a team of people and come to a consensus (compromise) determining which organization will ultimately get the money.

Team Organization: \_\_\_\_\_

Unlike Mr. James Smithson, explain the decision of the group.

***T is for Tin Lizzie, the nickname of the Model T***

[http://americanhistory.si.edu/onthemove/themes/story\\_78\\_3.html](http://americanhistory.si.edu/onthemove/themes/story_78_3.html)

View the variety of model T's on display. Also view Richard Petty's stock car and Ed Roberts' motorized wheelchair.

There are many items with wheels in the Smithsonian.

Have a friendly competition with a friend. See how many items each of you can think of that have wheels; don't just think of vehicles, household items have wheels, too. Ask someone to time you—only three minutes.

Yourself

Friend

## ***U is for Udvar-Hazy Center***

### **Fill in the blanks.**

On July 16, 19\_\_ \_\_ Michael Collins, Neil Armstrong, and Edwin “\_\_\_\_\_” Aldrin took a trip to the moon on the Apollo \_\_\_\_\_.

Neil Armstrong and Edwin Aldrin spent over \_\_\_\_\_ hours on the Moon’s surface.

The National Air and Space Museum has \_\_\_\_\_ locations. The Udvar-Hazy has many artifacts from the journey to the \_\_\_\_\_ and is located in Chantilly, \_\_\_\_\_.

<http://www.nasa.gov/education/cybercenter/planets/cybercenterfull.htm>

Explore Space using the Cyber Center with a little help from your Principal Investigator (parent or teacher).

There are activities and information, labs, games, and so much more. By the time you finish exploring you will be thinking like an astronaut.



## ***U is also for Underground***

You already know about the Freer and Sackler Gallery but the National Museum of African Art is underground as well.

<http://africa.si.edu/collections/divpage.htm>

Select one of the categories, such as Costumes and Textiles, Masks, Toys and Entertainment, or Weapons and Armaments.

Africa is a huge continent, represented by a variety of people and traditions. Select one of the areas, name, country, ethnic group, or use to view an item. Go through several categories and areas to see the wide variety of African Art the Smithsonian exhibits.

Choose two items to share with your parents or friends.

Draw each of the items below and use a short phrase to bullet list (short phrases of information) three facts that will help them understand more about the item.



## ***V is for Volunteer***

<http://www.si.edu/museums/>

Read through each of the Smithsonian museum summaries. Share with a friend or parent which three museums where you would most like to be a volunteer. Now pick your one favorite out of the three.

Explain why this would be the best place to volunteer.

NOT SO FAST, not just anyone can volunteer for the most famous museum in America.

Write a persuasion letter to the museum's curator, convincing him or her to let you volunteer. Start by introducing yourself, then share the ways that you are responsible, hard-working, and cooperative. Close your letter by sharing why you would like to volunteer in this particular museum (use your explanation from above) and by thanking the curator for considering you.

## ***W is for the Wizard of Menlo Park***

Why was Thomas Edison nicknamed the Wizard of Menlo Park?

Draw the two inventions mentioned in the book.

1.

2.

[http://invention.smithsonian.org/centerpieces/iap/playhouse\\_main.html](http://invention.smithsonian.org/centerpieces/iap/playhouse_main.html)

Explore the Lemelson Center: Invention at Play. There are many exciting games that will help you think.

[http://invention.smithsonian.org/centerpieces/iap/inventors\\_main.html](http://invention.smithsonian.org/centerpieces/iap/inventors_main.html)

Read the autobiographies of some of the inventors. Record what advice the inventor shares that might help you actually make your patent ideas from “P is for patent” become a reality.

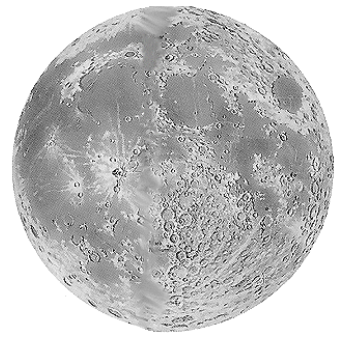
W is also for Web site. You have been using the Smithsonian Web site as you read through this book and worked through these experiences, but you can actually walk through the Smithsonian with Ben Stiller, the actor from the movie *Night at the Museum: Battle of the Smithsonian*. (Be patient, it takes some time to load.)

<http://www.si.edu/visit/InfoCenter/videotour.htm>

## ***X is for Xu Bing***

<http://www.asia.si.edu/exhibitions/current/xuBing.htm#>

View the sculptor and learn more about Xu Bing.



There are other folk tales from many countries about the moon and the monkey. Do a search for yourself using the key words monkey, moon, and folk tale. Read a few of these and share a few with friends and family, too. Folk tales were originally spoken, not written and read.

Write your own folk tale. Think about what type of trouble the monkey gets into or whether the monkey finally catches the moon? Only you know.



## ***Y is for Yupik***

Most of us can only imagine the skies the Yupik see as the Aurora Borealis fills the heavens. The Yupik and other native Alaskan cultures are from the Northwest and have many different languages. The Navajos now live primarily in the Southwest and their language is actually one of the reasons the U.S. troops were successful during World War II.

<http://www.nmai.si.edu/education/codetalkers/>

A. Listen to the Code Talkers' story, read information, and view pictures.

B. Record at least ten bullets (short phrases) of interesting and/or important information on index cards.

C. Share your information in a Laser Talk (short and to the point speech).

### **Directions for You:**

Look for key vocabulary and organize your information.

Practice your talk several times with and without the bulleted-note cards.

Create a five-question true or false quiz for your audience.

### **Directions for Your Audience:**

Fill out the rubric below after you actively listened to the Laser Talk and take the quiz.

Share a few oral comments with the presenter.

Score the speaker by circling 1, 3, or 5. Five is the highest score.

#### **Structure:**

- 1 3 5 Speaks clearly/no mumbling
- 1 3 5 Accurate volume, expression, and speed for audience
- 1 3 5 Eye contact/directs talk toward audience
- 1 3 5 Organized and does not jump around
- 1 3 5 No fidgeting

#### **Content:**

- 1 3 5 Shares important and/or interesting facts
- 1 3 5 Key terms are used and emphasized

#### **Overall Score:**

- 1 3 5

<http://www.nmai.si.edu/searchcollections/peoplescultures.aspx>

Follow the steps in order to search for even more native cultures and artifacts.

## ***Z is for Zoo***



**Thanks for coming; but do you have any bamboo?**

<http://nationalzoo.si.edu/>

Tour the zoo using the Photo Galleries, Exhibits, and even Live Cams to see all of the animals including Tian Tian, Mei Xiang, and of course, Tai Shan. As you look at the animals, imagine what they are saying to you. We always talk to them, but what would they say to us if they could talk?

Feature your favorite animal in a poster. Write what they would say in a caption below the picture, like the one above.

Sketch out the animal here (or use Web pictures) and try out a few ideas before you create it on the 11x17 paper in full color! Take your time and remember to use big writing—posters are meant to be viewed from a distance.

## After reading

Go back to “C is for Castle” and decide if your questions were answered. Were you able to find the answers as you worked through each of the pages of the book, experiences, and Web sites? What questions are left to be answered? Do you have any new questions? Also, make sure you share all of the things you enjoyed about visiting the Smithsonian through the book and Web sites and thank them. A thank-you is always appreciated!

Before you write out the e-mail ([info@si.edu](mailto:info@si.edu)) and send it, create a draft here. You want to make sure that you present your best work to this famous museum. Proofread for punctuation, spelling, capitalization, homonyms (there, their, they're) etc., and get a parent or teacher to help you, too.

## **Answer Guide**

### **Anticipation Guide**

*T, T, F, F, T, T, T, T, F, T, T, T, F*

### **A – Vocabulary**

#### **Aviation**

Aeronautics is the study of the science of flight.

#### **Aerodynamics**

The study of how air flows around the airplane.

#### **Air**

Air is a physical substance which has weight and is made up of molecules which are constantly moving. Moving air has a force that will lift kites and balloons up and down. Air is a mixture of different gases: oxygen, carbon dioxide, and nitrogen.

#### **Airfoils**

The wings of a plane.

#### **Ailerons**

They are hinged on the wings and move downward to push the air down and make the wing tilt up.

#### **Elevators**

are found at the rear of the plane. They can be raised or lowered to change the direction of the plane's nose. The plane will go up or down depending on the direction that the elevators are moved.

#### **Fan**

The fan is the first component of the turbofan engine. The large spinning fan sucks in large quantities of air. The blades of the fan pull the air into the engine.

#### **Fin**

is the vertical part of the tail.

#### **Flaps**

The flaps slide back and down to increase the surface of the wing area.

#### **Fuselage**

The body of the plane.

#### **Gas Turbine**

Another term for engine.

#### **Lift**

A force that pushes objects upward.

#### **Pitch**

Pitch is to make a plane descend or climb. The pilot adjusts the elevators on the tail to make a plane descend or climb. Lowering the elevators caused the airplane's nose to drop, sending the plane down. Raising the elevators causes the airplane to climb.

#### **Roll**

To roll the plane to the right or left, the ailerons are raised on one wing and lowered on the other. The wing with the lowered aileron rises while the wing with the raised aileron drops.

**Rudder**

The rudder is found on the tail of the plane. Moving it right and left controls the left and right movements of the plane.

**Slats**

The slats move out from the front of the wings to make the wing space larger. This helps to increase the lifting force of the wing at slower speeds like takeoff and landing.

**Spoilers**

The spoilers are used like air brakes to reduce any remaining lift and slow down the airplane.

**Tail**

The part of the plane that provides stability for the plane.

**Thrust**

The force of flight that pushes a plane forward. The engine provides the thrust for flight.

**Turbine**

A part of the engine.

**Yaw**

is the turning of a plane. When the rudder is turned to one side, the airplane moves left or right. The airplane's nose is pointed in the same direction as the direction of the rudder. The rudder and the ailerons are used together to make a turn.

***E – Benefits of biodiversity – possible answers***

- keeps ecosystems in balance and makes our planet livable.
- has inspired creativity and cultural traditions around the world. Some archaeologists study artifacts to learn about how people in the past may have interacted with the natural world. Some cultural anthropologists observe present-day societies to see what role biodiversity plays in today's life.
- provides many things that are important to human life.
- learn more about how we might manufacture materials that work like natural ones.
- activities like hiking and kayaking keep us healthy and they're fun too; there would be fewer places to go and less to see.
- pine trees, tide pools, tulips, and you—biodiversity is beautiful and helps us relax!

***F – Flags***

1. September 14, 1814
2. British troopship, 4 miles from Ft. McHenry
3. Negotiate the release of American civilians
4. rampart - a defensive fortification made of an earthen embankment, often topped by a low protective wall
5. four verses
6. Civil War, a time when many Americans turned to music to express their feelings for the flag and the ideals and values it represented
7. 1931

## **G – George Catlin**

Indians of the Plains

Mission for the government, studying Indian tribes west of the Mississippi

## **H – Hope Diamond**

What - Wittelsbach-Graff Diamond, 31.06 carat diamond of flawless clarity, treasured and worn by European royalty

When – January 29, 2010

Where – National Museum of Natural History, Harry S. Winston Gallery; originated in India.

Who – Wittelsbach-Graff and Smithsonian

Why – Object of intrigue and legend – greatest gemstones of the world; Smithsonian scientists and colleagues will analyze the two gems and explore the possibilities that they came from the same mine.

How – This exhibition was made possible through the generous support of Wittelsbach-Graff.

## **M – Mummification**

Some animals were also mummified; mummification preserved the body for the afterlife; mummification provided a safe passage to a happy afterlife; the Smithsonian has several mummies on display, even a mummified cat.

## **P – Peacock Room**

1. ceremonial kimono
2. China
3. dining room in the London home of Frederick R. Leyland
4. James McNeill Whistler
5. 1000 pounds
6. March, 1877
7. 1919
8. Art and Money or The Story of the Room
9. Frederick R. Leyland
10. Charles Lang Freer

### ***S – Smithsonian***

$$1131 \times 16 = 18,096$$

$$18,096 \times 20 = 361,920$$

$$361,920 \times 105 = \mathbf{\$38,001,600.00}$$

### ***T – Things with Wheels***

vacuum cleaner, airplane, sewing machine, office chair, bike, refrigerator, stove, bed frame, motorcycle, dirt bike, ATV, wagon

### ***U – Udvar-Hazy Center***

On July 16, 1969 Michael Collins, Neil Armstrong, and Edwin “**Buzz**” Aldrin took a trip to the moon on the Apollo **11**.

Neil Armstrong and Edwin Aldrin spent over **2** hours on the Moon’s surface.

The National Air and Space Museum has **two** locations. The Udvar-Hazy has many artifacts from the journey to the **Moon** and is located in Chantilly, **Virginia**.

### ***W – Thomas Edison***

Nicknamed because he invented the phonograph

Two drawings: phonograph and light bulb