



### Antique Automobile Club of America Museum Scavenger Hunt

Take time to find the answers to the questions with a partner and have fun exploring all of the automobiles in our museum.

**After passing through exhibit room one, visit the machine shop to see how the very first cars were made back in the 1890's. 1. Push** the button to see the machines in action. **Touch** the video screen and pick the tab *Craftsman vs. The Assembly Line* then **watch** the video. What did Henry Ford create?

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2. Which automobile has a candle on it? \_\_\_\_\_

**Walk straight ahead to the cars of the 1920's. 3. Find** the car with a rumble seat. What make is it and what was the seat used for? Name: \_\_\_\_\_ Use: \_\_\_\_\_

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4. Read the sign, Building the Automobile in the 1920's. Which company first mass produced eight cylinder engines? \_\_\_\_\_

5. What type of car did Milton Hershey own? \_\_\_\_\_

**Move on to the luxurious and artistic automobiles of the 1930's. 6. Ask a volunteer** to explain what style of art was often used in designing these cars. \_\_\_\_\_

7. Find a car with a **running board** and name it (use your **AACA vocabulary list** as needed).  
\_\_\_\_\_

**Move across the aisle, explore the eight-point gas station, find the bell and ring one time.**

8. **Name** four of the eight types of service that one could get when driving up for gasoline.

a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_ d. \_\_\_\_\_

**Move along to the 1950's Drive-In theater. 9. What** was the device sitting between the cars used for? \_\_\_\_\_

**10. Read the STATS sign** for the 1950's. A. What unique **feature** became industry wide on cars by 1953? \_\_\_\_\_

B. What **year** did cruise control appear on the Chrysler Imperial and Cadillac? \_\_\_\_\_

C. Which **state** began to install pollution control equipment in 1959? \_\_\_\_\_

**Move to the cars of the 1960's and 1970's along Route 66, read the STATS sign.**

11. In what **year** did seat belts become standard on all cars? \_\_\_\_\_ 12. What **advantage** does the caliper disc brake have over the drum brake? \_\_\_\_\_

13. What car **system** was required by the government on all makes and models in 1968?

\_\_\_\_\_  
How can this help the environment? \_\_\_\_\_

14. There are **27 Native American Indian tribes** that lived along what became Route 66. **Name** two of them: (use Google Search Native American Tribes and Route 66)  
\_\_\_\_\_, \_\_\_\_\_

**15. Stop by the Stearns Knight Cut-Away Engine displaying a working Sleeve Valve Engine. Push the button,** see how the engine works. What is a cylinder and how many does this engine have? (use your AACCA vocabulary list) \_\_\_\_\_

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**Move into The Preston Tucker Exhibit.** This exhibit houses three Tucker cars, original blueprints, prototype engines and real stories about Tucker and his automobile company.

**16. Read** about the life of Preston Tucker along the left wall. **How** did Tucker help the **U.S. Army** during World War II? \_\_\_\_\_

**17. Find the poster** inside the Tucker Barn about **safety features** which made the Tucker cars unique. **Name and describe** two safety features of these cars. Feature: \_\_\_\_\_

Description: \_\_\_\_\_

Feature: \_\_\_\_\_ Description: \_\_\_\_\_

**18. Look inside the drawers under the Safe Stop Disc Brakes:** When driving 20 mph these brakes decelerated at 12 feet per second, 30 mph decelerated at 25 ft. per sec, 40 mph decelerated at 58 ft. per sec and 50 mph decelerated at 91.4 ft. per sec. **Find the average deceleration of feet per second between 20 and 50 miles per hour.** \_\_\_\_\_ feet (Show your work)

**19. Examine the chassis** of the Tucker and the Cadillac in the center of the exhibit. How were their **suspensions different?** \_\_\_\_\_

**20. Walk into the Tucker Dealership.** To guarantee a spot on an exclusive Tucker '48 waiting list, what did the customer have to purchase? \_\_\_\_\_

**Proceed through the gift shop and take the elevator down to the basement. Explore the luxury bus liners, motorcycle collection and other unique automobiles.**

**21. Find** the 1942 Jeep, it was originally called the GPW, which means \_\_\_\_\_  
\_\_\_\_\_ Design.

**22. Inside the 1950's Diner, how many servings of soda could one get for a \$1.00?** \_\_\_\_\_

**23. Find** the **1952** Studebaker, this year was the **centennial** of the company. How did the company exist this long if cars were not created until the 1890's? \_\_\_\_\_

**24. One of the busses** appeared in which Tom Hanks movie? \_\_\_\_\_

**Return to the second floor via the elevator to explore the mascots (hood ornaments) inside the cases.**

**25. Find** the mascot that you like best, describe it, name its company, car make and model.

**Description:** \_\_\_\_\_

**Company:** \_\_\_\_\_ **Car Make:** \_\_\_\_\_ **Model:** \_\_\_\_\_

**Teachers please read the instructions for the AACCA Scavenger Hunt in order to ensure the success of your students completing the answers and enjoying their visit to the museum.**

1. Teachers should visit the museum or their website prior to attending and administering the scavenger hunt in order to accurately facilitate for students. Also, review the scavenger hunt and answer key prior to administering to students.
2. Students will need the following materials: calculator, pencil, smart phone or tablet with access to the Internet. Teachers please bring one to two tablets or internet devices available for those students who do not have their own device.
3. A vocabulary list is provided to aid students in successfully completing the scavenger hunt. Each student should be given a copy to review prior to the field trip and then use it during the field trip experience.
4. Students should partner in groups of two in order to develop teamwork and complete the scavenger hunt within the time frame of two and a half to three hours.
5. Students should be broken into three groups of eight to ten students with chaperones. One group should start at the First Automobiles of the 1890s and answer questions #1-14. The second group should start with questions #15-20 at the Sleeve Valve Engine and Tucker Exhibits. The third group should start in the basement with questions #21-24 and then proceed to the first floor to answer questions #1-20. Students can all meet on the third floor to answer question #25 at the end with the teacher/s and chaperones. This will eliminate having too many students at any one exhibit in the museum.
6. When students have finished their scavenger hunt, they can review their answers with the teacher in the rotunda near the mascots (hood ornaments) on the third floor, or the teacher can collect them and review the answers later with students in the classroom.
7. It is best for students to have a clipboard to write on when answering the questions.
8. Located at most of the exhibits are STATS signs that light up with white and red lighting. Students will have to locate these and read the information to answer questions 4, 10, 11, 12 and 13. *The teacher should point this out at the beginning of the scavenger hunt.*
9. This activity was designed to allow students to interact with all of the exhibits, volunteers and each other at the museum through learning about the design, history and impact of automobiles on our society; while enhancing their reading and math skills.

## Answers to AACCA Scavenger Hunt

1. Henry Ford created the **assembly line**, which was an improved system of manufacturing items in mass production. (*assembly line is acceptable as an answer or all of above*)
2. **Benton Harbor Motor Carriage**
3. **Name:** 1929 Ford Two-Door Roadster **Use:** The seat was used for extra passengers or luggage.
4. **Packard**
5. Milton Hershey owned the **Chrysler Airflow**
6. **Art Deco** style of art
7. **1932 Studebaker Model 55 St. Regis** or *sometimes an optional car is shown and the teacher may need to find the current car being displayed here to add to the answer key.*
8. 1. Greeting/Windshield Service 2. Gasoline (sale and service) 3. Radiator Check 4. Oil Check 5. Battery Testing 6. Tire Check 7. Lube Check and Vacuum 8. Itemized Collection and Friendly Farewell. *Answers can be any four of the eight types of service in any order.*
9. It is a **speaker** that one would set on the car window **to hear the movie** (*answer #9 does not have to include all of the above*)
10. a. **air conditioning** b. cruise control appeared in **1957** c. **California** started pollution control equipment (*answers in bold*)
11. **1963**
12. The caliper disc brake **does not lock up** compared to the drum brake.
13. **Emission control system for exhaust** are systems designed to store and dispose of fuel vapors before they can escape into the atmosphere to help control air pollution in the environment.
14. **Arizona** Hualapai, Hopi, Navajo-**Oklahoma** Cherokee, Cheyenne-Arapahoe, Miami, Osage Nation, Quapaw, Modoc, Ottawa, Sac & Fox Nation, Chickasaw, Choctaw, Peoria, Muscogee (Creek) **New Mexico** Pueblo of Acoma, Pueblo of Isleta, Pueblo of Laguna, Pueblo of Cochiti Kewa Pueblo (Santo Domingo), Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of San Felipe Pueblo of Zia, Pueblo of Zuni **California** San Manuel Band of Mission Indians, Fort Mojave Tribal Council –all Native American Tribes that lived along Route 66 (only three tribes needed for answer)
15. The Stearns Knight Cut-Away Engine has **six cylinders**. A **cylinder** in an engine, is a cylindrical chamber in which the pressure of gas or liquid moves a sliding piston.
16. Tucker designed the **Tucker Tiger, an all welded armor plated army tank**. (The army decided not to use the tiger but did use the turret that Tucker designed in U.S. PT boats, landing craft and the B-17 aircraft during W.W. II.) *Students do not need the answer in parentheses to earn credit for #17.*
17. 1. **Cyclops Eye:** turns with front wheels, lights around corners 2. **Safety Windshield:** safety glass mounted in rubber that will eject in one piece 3. **Precision Balance:** eliminates car skidding and weight is even more evenly distributed 4. **Tucker Crash Cowl:** upholstered sponge rubber on the dashboard which makes it safe for passengers in the event they hit the front dash in an accident 5. **Tucker Crash Chamber:** safety chamber for space to crawl in front of the passenger seat in the event of an accident 6. **Tucker Safety Frame:** surrounds passenger compartment, lower frame, shaped to deflect angle blows. *Students may have any two of the following six safety features.*
18. To find the average, students do not actually have to look inside the drawer but should know to add all amounts of feet per second and divide by four.  $(12 + 25 + 58 + 91.4) = 46.6$

**feet per second.** *Students should have access to calculators on their phones, tablets. Some calculators can be brought on the field trip.*

19. The Tucker had an elastomeric, rubber, four-wheel, independent suspension while the Cadillac had a front suspension with a solid-rear axle.
20. Customers had to **purchase luxury automobile accessories** such as radios, mirrors and hubcaps in order to be on the waiting list for a Tucker car. (*specific accessories do not need to be listed*)
21. **General Purpose Willy's Design**
22. **5 servings of soda**
23. Studebaker was a company that made wagons starting in 1852. Students will need to know the meaning of centennial (*which is found on the vocabulary portion*) and will need to do basic math and then read the information about the 1952 Studebaker in order to come to this conclusion.
24. "Forrest Gump"
25. \*Optional bonus point: Students can choose their answer. There are hundreds of mascots (hood ornaments) in the rotunda area on the third floor. As long as students have a description, company name, car make and model they can earn the bonus point.

## **Common Core Standards in the Scavenger Hunt for Sixth through Eighth Grade**

**Mathematics-** CC.2.1.6. E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.

C.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs. M03.D-M.2.1.1 M03.D-M.2.1.2 M03.D-M.2.1.3 M03.D-M.2.1.4

**Language Arts-** CC.1.2.6. A Determine the central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments. E06.B-K.1.1.2

CC.1.2.7. A Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text. E07.B-K.1.1.2

CC.1.2.8. A Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.

CC.1.2.7. F Determine the meaning of words and phrases as they are used in grade-level reading and content, including interpretation of figurative, connotative, and technical meanings. E07.B-V.4.1.1 E07.B-V.4.1.2 E07.B-C.2.1.

CC.1.2.6. G Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

CC.1.2.7. G Compare and contrast a text to an audio, video, or multimedia version of the text, analyzing each medium's portrayal of the subject (e.g., how the delivery of a speech affects the impact of the words).

**Vocabulary Acquisition-** CC.1.2.6. J, CC.1.2.7. J, CC.1.2.8. J Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression. E06.B-V.4.1.1 E06.B-V.4.1.2

CC.1.2.6. K, CC.1.2.7. K, CC.1.2.8. K Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade-level reading and content, choosing flexibly from a range of strategies and tools. E07.B-V.4.1.1

**Reading Comprehension-** CC.1.2.6. L, CC.1.2.7. L, CC.1.2.8. L Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.

## References

*1950's drive-in theater*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

*Automobiles pre-1900*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

Czarnecki, G. (Photographer). (2015, October 9). *1924 Marmon* [photograph]. Hershey, PA: The Antique Automobile Club of America Museum.

*Eight-point full-service gas station*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

*Hershey in the 1920's*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

*Miami in the 1930's*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

*Route 66*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

*Stearns-knight cut-away sleeve valve engine*. [Museum exhibit]. (n.d.). The Antique Automobile Club of America Museum. Hershey, PA.

The Antique Automobile Club of America Museum. (2016). Retrieved from <https://www.aacamuseum.org>

*Tucker automobiles: the Cammack Collection*. [Museum exhibit]. (2015). The Antique Automobile Club of America Museum. Hershey, PA.

## Appendix B      AACA Museum Scavenger Hunt Vocabulary List of Automobile Terms

1. **Accelerating**- to move or go faster; increase in speed. Verb
2. **Automatic Transmission**- an automotive transmission requiring either very little or no manual shifting of gears. Noun
3. **Caliper Disc Brakes**- a brake system in which a disc attached to a wheel is slowed by the friction of brake pads being pressed against the disc by a caliper. Noun
4. **Centennial**- pertaining to, or marking the completion of, a period of 100 years.
5. **Chassis**- the frame, of a motor vehicle, on which the body is supported. Noun (the underbody structure of the car).
6. **Cruise Control**-a system, available for some automobiles, motorcycles, etc., that automatically maintains a vehicle's speed by taking control of the accelerator. Noun
7. **Cyclops Headlight**- one headlight that sits in the middle front of the car. Noun
8. **Cylinder**- (in an engine) a cylindrical chamber in which the pressure of a gas or liquid moves a sliding piston. Noun
9. **Decelerating**- to slow the rate of increase of an object in motion. Verb
10. **Diesel Engine**- a compression-ignition engine in which a spray of fuel, introduced into air compressed to a temperature of approximately 1000° F (538° C), ignites at a virtually constant pressure. Noun
11. **Drum Brakes**- a brake system in which a pair of brake shoes can be pressed against the inner surface of a metal drum that is rigidly attached to the wheel. Noun
12. **Emission Control Systems**- These systems found in the engine area and exhaust system are designed to store and dispose of fuel vapors before they can escape into the atmosphere to help control air pollution. Noun

13. **Exhaust System-** A system of pipes that channel the escape of steam or gasses from the cylinders of an engine. Noun
14. **Horsepower-**A unit that is used to measure the power of engines and motors. One unit of horsepower is equal to the power needed to lift 550 pounds one foot in one second. Noun
15. **Mascot-(Hood Ornament)-** a specially crafted model which symbolizes a car company like a badge, located on the front center portion of the hood. It has been used as an decoration since the creation of automobiles. Noun
16. **Manufacturing-** to make or produce by hand or machinery, especially in large amounts. Verb
17. **Motor Coach-** a passenger bus powered by a motor. Noun
18. **Piston-** A solid cylinder or disk that fits snugly into a hollow cylinder and moves back and forth under the pressure of a small gasoline explosion. Noun
19. **Prototype-** the original design, on which something is based. Noun
20. **Radiator-**a device for cooling an internal-combustion engine, made of thin-walled tubes through which water moves. Heat is transferred from the water through the walls of the tubes to the airstream, which is created either by the motion of the vehicle or by a fan. Noun
21. **Rumble Seat-** a seat set into the back of a coupe or roadster model car, covered by a hinged lid that opens to form the back of the seat when in use. Noun
22. **Running Boards-** a small ledge, step, or footboard, attached beneath the doors of an automobile, to assist passengers entering or leaving the car. Noun
23. **Suspension-** the system of parts such as shock absorbers and struts that maximize the friction between the tires and the road surface, to provide steering stability with good handling and to ensure the comfort of the passengers. It is attached to the chassis. Noun

24. **Transmission**- a compact, enclosed unit of gears for changing the movement of the engine into the movement of the driveshaft which in turn changes the movement of the axles which are connected to the wheels of a car and eventually moves the car. Noun
  
25. **Turret**- a domelike, sometimes heavily armored structure, usually revolving horizontally, within which guns are mounted, as on a fortification, ship, or aircraft. Noun
  
26. **Upholstery**- the materials used to cushion and cover the passenger seats other automotive interior parts of a vehicle. Noun

#### References

(n.d.) Dictionary.com Unabridged. Retrieved from <http://dictionary.reference.com>

Cromer, G. C. The automobile. (2000, January 26). In *Encyclopedia Britannica* online. Retrieved from <http://www.britannica.com/technology/automobile>