



The ACA Museum Information Hunt

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 in our society; while enhancing their reading and math skills.

Instructions and Tips for Teachers

1. *Students will need the following materials:* calculator, pencil, clipboard, vocabulary list
2. Review the scavenger hunt and answer key prior to administering to students.
3. Review the vocabulary list with students either before the trip or on the way. You may want to provide a list to each student.
4. ***The teacher should point this out at the beginning of the scavenger hunt.*** 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.
5. Questions can be broken down into groups
 - a. Group 1 - start at the First Automobiles of the 1890s and answer questions #1-14
 - b. Group 2 - start with questions #15-20 at the Sleeve Valve Engine and Tucker Exhibits
 - c. Group 3 - start in the basement with questions #21-24 and then proceed to the first floor to answer questions #1-20
 - d. Students can all meet on the third floor to answer question #25 at the end with the teacher/s and chaperones.
6. Scavenger hunt is most successful in groups of 2 or 3 to develop teamwork and complete it in a time frame of two and a half to three hours

Vocabulary

- **Caliper Disc Brakes** (noun) - 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.
- **Centennial** (noun) - pertaining to, or marking the completion of, a period of 100 years.
- **Chassis** (noun) - the frame of a motor vehicle, on which the body is supported. Noun (the underbody structure of the car).
- **Cruise Control** (noun) - a system, available for some automobiles, motorcycles, etc., that automatically maintains a vehicle's speed by taking control of the accelerator.
- **Cyclops Headlight** (noun) - one headlight that sits in the middle front of the car. Noun
- **Cylinder** (noun) - (in an engine) a cylindrical chamber in which the pressure of a gas or liquid moves a sliding piston.
- **Drum Brakes** (noun) - 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.
- **Emission Control Systems** (noun) - 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.
- **Mascot or Hood Ornament** (noun) - 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 a decoration since the creation of automobiles.
- **Prototype** (noun) - the original design, on which something is based.
- **Rumble Seat** (noun) - 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.
- **Running Boards** (noun) - a small ledge, step, or footboard, attached beneath the doors of an automobile, to assist passengers entering or leaving the car.
- **Upholstery** (noun) - the materials used to cushion and cover the passenger seats and other automotive interior parts of a vehicle.

Follow the directions in gray and read the following questions to provide answers from information you find around the AACA Museum.

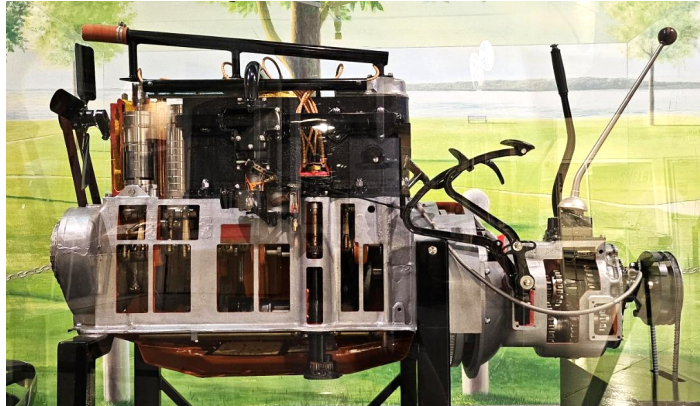
After passing through exhibit room one, visit the **machine shop** to see how the very first cars were made back in the 1890's.

1. *Push the button to see the machines in action. Touch the video screen and pick the tab Craftsman vs. The Assembly Line and then watch the video.*

What did Henry Ford create?

2. Which automobile has a candle on it?

Stop by the Stearns Knight Cut-Away Engine displaying a working Sleeve Valve Engine. *Push the button, see how the engine works.*



3. What is a cylinder and how many does this engine have? (use your AACA vocabulary list)

Walk straight ahead to the **cars of the 1920's**.

4. Find the car with a rumble seat. What make is the car and what was the seat used for?

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

6. What type of car did Milton Hershey own?

Move on to the luxurious and artistic **automobiles of the 1930's**.

7. Ask a volunteer to explain what style of art was often used in designing these cars.

8. 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.

9. List four of the eight types of service that one could get when driving up for gasoline.

Move along to the 1950's Drive-In theater.

10. What was the device sitting between the cars used for?

11. 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*.

12. In what year did seat belts become standard on all cars?

13. What advantage does the caliper disc brake have over the drum brake?

14. a) What car system was required by the government on all makes and models in 1968?

b) How can this help the environment?

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.



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

16. 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.

17. **CHALLENGE QUESTION-** 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.

Walk into the Tucker Dealership.

18. To guarantee a spot on an exclusive Tucker '48 waiting list, what did the customer have to purchase?

19. Name two pieces of Tucher merchandise or memorabilia.



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

20. Go inside the 1950's Diner, how many servings of soda could one get for \$1.00?

21. Look through the diner's menu. Pick your favorite slang word from that era and compare it to a slang term used today.



22. One of the buses appeared in a Tom Hanks movie; what was the name of this movie?

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

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

Description:

Company:

Car Make:

Model:

Answer Key

1. The assembly line
2. Benton Harbor Motor Carriage
3. A cylinder is a chamber in an engine in which the pressure of gas or liquid moves a sliding piston. The Stearns Knight Cut-Away Engine has six cylinders.
4. 1929 Ford Two-Door Roadster. The seat was for extra passengers and/or luggage.
5. Packard
6. Chrysler Airflow
7. Art Deco style
8. 1932 Studebaker Model 55 St. Regis (answers may differ or change)
9. **Students may have any 4 of the following**
 - Greeting/Windshield service
 - Gasoline
 - Radiator check
 - Oil check
 - Battery testing
 - Tire check
 - Lube check and vacuum
 - Itemized collection and farewell
10. Speaker used to hear the audio from the movie
11.
 - a. Air conditioning
 - b. Cruise control appeared in 1957
 - c. California started pollution control equipment
12. 1963
13. Caliper disc brake does not lock up compared to the drum brake
14.
 - a. Emission control system for the exhaust
 - b. They are designed to store and dispose of fuel vapors before they can escape into the atmosphere to help control air pollution in the environment.
15. He designed the Tucker Tiger, an all welded armor plated army tank
16. **Students may have any two of the following six safety features**
 - Cyclops Eye*: turns with front wheels, lights around corners
 - Safety Windshield*: safety glass mounted in rubber that will eject in one piece
 - Precision Balance*: eliminates car skidding and weight is even more evenly distributed
 - 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
 - Tucker Crash Chamber*: safety chamber for space to crawl in front of the passenger seat in the event of an accident
 - Tucker Safety Frame*: surrounds passenger compartment, lower frame, shaped to deflect angle blows.
17. 46.6 feet per second
18. Luxury automobile accessories
19. **Students may have any two of the following**
 - Ashtray, paper weights, lighters, seat covers
20. 5 servings
21. *Answers will vary*
22. "Forrest Gump"
23. *Answers will vary*

Common Core Standards in the Scavenger Hunt

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.BV.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

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