



AMERICA'S CAR MUSEUM CURRICULUM GUIDE

GO



Stylish Speed (Kindergarten-2nd Grade)

Program Overview:

During a guided tour, students will identify major colors and shapes found on cars. They will compare and contrast cars and hypothesize how car shapes and colors have changed over time. Students will begin to make connections between car design and speed.

Guiding Questions:

What shapes and colors are found on cars? Why are cars designed in certain ways? How are new cars different from old cars? How does a car's shape affect its speed?

Key Concepts/Themes:

- Two and three-dimensional shapes
- Primary and secondary colors
- Chronological order
- Cause and effect
- Compare and contrast
- Patterns



Suggested School Program Schedule:

- 9:45am: Arrive at the museum. Lead teacher will check-in.
- 10:00-10:15am (10 minutes): Welcome and introduction to program. Students break into smaller groups of approximately 10 students and are matched with a museum educator for the guided tour.
- 10:15-11:45am (90 minutes): Guided Tour with hands-on gallery activities.
- 11:45-11:50am (5 minutes): Return to lobby.

If booked in advance for an additional fee, school groups may also participate in hands-on workshops and enjoy a test run on either the racing simulator or slot car track in the Speed Zone. Indoor space to eat lunch may also be available, if booked in advance.

How to Prepare for Your Museum Visit:

This curriculum guide includes background information, pre- and post-visit lesson plans, a glossary of terms, and additional resources to help enhance your museum experience. Each lesson corresponds to Essential Academic Learning Requirements (EALRs) and Common Core Standards (CCSS). Please modify these lessons as you see appropriate. Feel free to let us know if we can provide you with additional resources to better integrate your field trip into your classroom curriculum.

In addition to familiarizing yourself with this *Curriculum Guide*, please review the *Field Trip Guide* included in your confirmation letter. This includes detailed information for all chaperones.



**Possible cars that
will be highlighted:**

1937 Chrysler

Airflow: This is considered the first streamlined car. It was a flop when it debuted in 1934 because it was considered “too modern.” However, its innovative aerodynamics left a mark on every car since.

1951 Studebaker: The “bullet nose” on this car is a classic example military-inspired design.

1959 Chrysler 300 E:

The “fins” on this car provide the impression of flight.

**2012 No. 5 Farmers
Insurance Chevrolet:**

Enumclaw native
Kasey Kahne drives
this type of car.

*Images of these cars can be
found near the end of this
curriculum guide.*



ACM Background Information

Significance of Car Design

As consumers contemplate their options when buying a car, often the style of the vehicle is just as important as the technology in swaying their decision. The engineers at car manufacturing companies put much thought into the function as well as the aesthetics of car bodies. Automotive designs are often chosen to appeal to a very specific audience and culture. For example, early vehicles, such as the “horseless carriages,” were designed to look similar to modes of transportation that already existed. However, as time went on, cars designs evolved. Studying the style and materials used in a car body can reveal much about the growth of science and technology, the desires and fears of everyday people, as well as, the impact of major events throughout history.

Scientific Factors: When comparing vehicles throughout history, one can see major changes in the overall height and shape of the car frame, as well as the quality of the materials used in construction. Cars from the 1890s-1920s were generally tall and boxy. Several features were separate from the car body including the headlights, hubcaps, trunk, and bumper, among others. The grill was also quite large. All of these factors led to poor aerodynamics because they increased drag and reduced velocity. In addition, many early cars had a high center of gravity. While tall, thin wheels made it easier to drive through fields or avoid sinking completely in muddy, unpaved roads, they also made it easier to topple over if going fast around a curve. By the 1930s, many new innovations were included in car designs. For example, cars began to be built using uni-body construction and metal frames replaced wood frames. Rumble seats went out of style and more rounded edges came into style. Hubcaps and headlights became connected to the main car body and windshields became curved. The center of gravity was lowered and wheels became smaller and wider. Many of these changes provided less resistance for air particles moving around the vehicle and thus increased efficiency.

Cultural Factors: Gender preferences and stereotypes, as well as historical events, influenced the way cars are designed and advertised. At the beginning of the twentieth century, many people believed that women couldn’t or shouldn’t drive at all. The cars that were marketed to women, mainly electric cars, contrasted with louder, supposedly more “masculine” gasoline-powered cars. Safety and comfort features were also seen as more appealing to women than men. The post-WWII economic boom, the creation of highways and suburbs, and even the later feminist movement encouraged the two-car family mindset and the belief that everyone should be able to own and drive a car. This affected the availability of various paint colors and interior fabric and pattern options. There was also excitement of no longer having to substitute paint for chrome, due to the war effort. As the Cold War heated up, new “masculine” features could be found on cars that resembled airplanes, guns, missiles, and bullets. Cars continue to be designed and marketed today to represent the desired image of the future car owner while simultaneously being impacted by political, environmental, and economic factors.



ACM Pre-Visit Lesson Plan #1

Car Classification

Learning Objective:

In this lesson, students will identify car characteristics and sort objects using a variety of toys with wheels.

Materials:

- ❑ A variety of toys with wheels
- ❑ Yarn or butcher paper/marker
- ❑ White board/dry erase markers
- ❑ Images of cars from LeMay - America's Car Museum
- ❑ Pictures of vehicles from magazines or the internet

Activity:

1. Bring out a variety of toy cars and place them where students can see them.
2. Tell students that they are going to classify (put the toys in groups) by their characteristics (how they look the same or different from the other toys).
3. Lay two yarn sorting circles (non-intersecting) on the carpet in the center of the students. You can also lay down a piece of butcher paper and draw two non-intersecting circles.
4. Ask the class: How can we sort these toys? Have the students choose the groupings (you may need to help them narrow down the groupings). Let the students look at and analyze the information in a variety of ways.
5. Separate the cars into each circle based on specific characteristics. For example, toys with 4 wheels or toys with less than 4 wheels. Other characteristics may include size, color, material the toy is made from, number of or lack of doors, number of movable parts, whether the toy resembles a real vehicle or not, the brand of the toy, etc.
6. Use the white board to keep a list of different groupings.

Optional:

1. Have students find pictures of two cars (on the internet or in a magazine) and make a list of similarities and differences. You may also use any of the car images that are found at the end of this curriculum guide.





ACM Pre-Visit Lesson Plan #2

Car Shapes and Colors

Learning Objective:

In this lesson, students will count and color different shapes as well as identify shapes that can be used to create their own car design. We can find basic shapes in almost any object that we examine. Learning to identify shapes in objects can help students have a better understanding of simple machines and the rest of the world around them.

Materials:

- ❑ Copies of the “Car Shapes” sheet, “Counting Car” sheet, and “Car Outline” sheet
- ❑ Scissors
- ❑ Glue
- ❑ Crayons
- ❑ Optional: card stock paper and craft sticks

Activity:

1. Give each student the “Counting Car” sheet. One by one, identify each shape, count how many are located on the car, and color them all one color. For example, rectangles as blue, circles as red, squares as green, and triangles as orange.
2. Give each student the “Car Shapes” sheet. Have students review their shapes by once again, coloring each shape a different color. For example, all rectangles are blue, all circles are red, all squares are green, and all triangles are orange.
3. Have the students cut out their own shape pieces. For younger students you may want to cut out the pieces ahead of time. Have the students sort the pieces into groups: triangles, squares, rectangles, and circles.
4. Give each student the “Car” outline and a glue stick. Have the students place the colored shapes on the car body to complete the picture. Emphasize that students do not have to arrange their cut-out shapes on their car body in the same way that was done on the “Counting Car Shapes” sheet. For example, a window could be made using any of the shapes provided. Encourage students to be creative.

Optional:

1. Have your students draw their own cars and place triangles, circles, squares and rectangles in the appropriate places on the car.
2. Cut out the finished cars and mount them on cardstock. Tape or glue a craft stick on the back of the car or fire truck and have your students role-play driving their vehicles.
3. Have the students describe their car and/or tell a story about their vehicle. Younger students may need an adult to transcribe their description/story, but older students should be encouraged to write their description/story using complete sentences. Display student responses and cars on a bulletin board.





ACM Pre-Visit Lesson Plan #3

Parts of a Car

Learning Objective:

Students will identify some of the external parts of a car as they participate in a reading activity and label a car diagram. A car can be observed as a system that is made up of many parts. There are parts that make up the exterior of a car's body, parts that make up the interior of the car where the passengers ride, and parts of the engine.

Materials:

- ❑ Copies of the "The New Car" story
- ❑ Copies of the "Car Labeling" sheet
- ❑ Crayons

Activity:

1. For younger students, read "The New Car" story out loud and label the parts of the car on the "Car Labeling" sheet together as a class. Older students will read the story themselves and then label the parts on their own.
2. Have students color their car diagrams the appropriate colors based on the story.

Optional:

1. Have students use dictionaries to look up the definition of each part of the car and write it down in their own words next to the car labels.
2. Tell students to make a list of other parts of a car that they know and label these parts on the pictures they drew.
3. Encourage students to draw pictures of their family vehicles and label the parts.
4. Instruct students to write their own stories using the vocabulary words on the labeling sheet.





ACM Post-Visit Lesson Plan

Museum Reflection

Learning Objective:

In this lesson, students will reflect on their guided tour at the Museum.

Materials:

- ❑ Markers
- ❑ Strips of construction paper
- ❑ Images of cars from LeMay-America's Car Museum
- ❑ Optional- Lined paper and pencils

Activity:

1. Ask students to discuss to the following questions.
 - a. What did you like about our trip to the car museum?
 - b. Describe the car that you found most interesting at the museum.
 - c. What were the most common shapes that you saw used as the wheels, windows/windshields, steering wheels, bumpers, headlights, doors, etc. Use museum images, if needed.
2. Have students draw an image of their favorite car in the Museum.
3. Using markers and strips of construction paper, ask students to provide a caption for their favorite car from the museum that describes why they find it interesting. Younger students may need an adult to transcribe their description, but older students should be encouraged to write their description using complete sentences. Display the car images and captions on a bulletin board.
4. Show images of cars from the museum and ask students to identify the different parts of each car and the shapes and colors used in the design.

Optional:

1. Encourage students to draw a car from their own imagination or one that they think should be added to the Museum's collection.
2. Older students may tell a story about an imaginary person that will drive their favorite car from the museum.
3. Ask students to interview adult family members (preferable from different generations) about the cars that they remember from their childhood and the first cars they themselves owned as adults.





ACM Extension Activity

Cool Cars to Color

Learning Objective:

Students will become familiar with four popular vintage cars (1960 Corvette, 1965 Mustang, 1966 Beetle, 1908 Model T) as they color and compare designs. Students will compare and contrast the car designs and identify the colors and shapes on their coloring sheet.

Materials:

One copy per student:

- ❑ 1960 Chevrolet Corvette coloring sheet
- ❑ 1965 Ford Mustang coloring sheet
- ❑ 1966 Volkswagen Beetle coloring sheet
- ❑ 1908 Ford Model T coloring sheet

Activity:

1. Have students color each of the vintage cars.
2. Ask students to identify differences and similarities between each car as a class.

Optional:

1. For older students, have them choose two of the cars to compare and contrast in detail. Have them write a sentence describing how one car is different or similar to the other.
2. Encourage students to make their own car drawings.
3. Post student drawings and sentences on a bulletin board.





Standards Addressed

The following standards are addressed through the museum visit, pre-visit lesson plans, post-visit lesson plans, and extension activities:

Common Core State Standards (CCSS):	Essential Academic Learning Requirements:
<p>English Language Arts and Literacy in History/Social Studies and Technical Subjects:</p> <p><u>Reading:</u></p> <ul style="list-style-type: none"> 1. Read closely to determine what the text is saying to make logical inferences from it; cite textual evidence when writing or speaking to support conclusions drawn from the text. 10. Read and comprehend complex literary and informational texts independently and proficiently. <p><u>Writing:</u></p> <ul style="list-style-type: none"> 2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, and analysis of content. 3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. <p><u>Speaking and Listening:</u></p> <ul style="list-style-type: none"> 1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively. <p><u>Language:</u></p> <ul style="list-style-type: none"> 1. Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking. 	<p>Math:</p> <p>K. (K.1, K.2, K.3, K.5): Whole Numbers, Patterns and Operations; Objects and their Locations; Reasoning, Problem Solving, and Communication.</p> <p>1. (1.1., 1.2, 1.3, 1.6): Whole Number Relationships; Addition and Subtraction; Geometric Attributes; Reasoning, Problem Solving, and Communication.</p> <p>2. (2.2, 2.5): Addition and Subtraction; Reasoning, Problem Solving, and Communication.</p> <p>Reading:</p> <p>1. The student understands and uses different skills and strategies to read.</p> <p>2. The student understands the meaning of what is read.</p> <p>3. The student reads different materials for a variety of purposes.</p> <p>Writing:</p> <p>1.(1.5) The student understands and uses a writing process.</p> <p>2. (2.1, 2.2, 2.3) The student writes in a variety of forms for different audiences and purposes.</p> <p>3. (3.1, 3.2, 3.3) The student writes clearly and effectively.</p> <p>Social Studies:</p> <p>3. (3.2) Geography- Understand human interaction with the environment.</p> <p>4. (4.1) History- Understands historical chronology.</p> <p>Communication:</p> <p>1. (1.1, 1.2) Student uses listening and observation skills and strategies to gain understanding.</p> <p>2. (2.1, 2.2, 2.3) The student uses communication skills and strategies to interact/work effectively with others.</p> <p>3. (3.1, 3.2, 3.3) The student uses communication skills and strategies to effectively present ideas and one's self in a variety of situations.</p>



Common Core State Standards (CCSS), continued:	Essential Academic Learning Requirements, continued:
<p>Mathematics:</p> <p><u>Grade K:</u></p> <ul style="list-style-type: none"> • <u>Counting and Cardinality:</u> Know number names and the count sequence. Count to tell the number of objects. Compare numbers. • <u>Operations and Algebraic Thinking:</u> Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. • <u>Measurement and Data:</u> Classify objects and count the number of objects in categories. • <u>Geometry:</u> Identify and describe shapes. Analyze, compare, create, and compose shapes. <p><u>Grade 1:</u></p> <ul style="list-style-type: none"> • <u>Operations and Algebraic Thinking:</u> Represent and solve problems involving addition and subtraction. • <u>Measurement and Data:</u> Represent and interpret data. • <u>Geometry:</u> Reason with shapes and their attributes. <p><u>Grade 2:</u></p> <ul style="list-style-type: none"> • <u>Operations and Algebraic Thinking:</u> Represent and solve problems involving addition and subtraction. • <u>Measurement and Data:</u> Represent and interpret data. • <u>Geometry:</u> Reason with shapes and their attributes. 	<p>The Arts:</p> <ol style="list-style-type: none"> 1. (1.1, 1.2) The student understands and applies arts knowledge and skills in visual arts. 2. (2.1, 2.2, 2.3) The student uses the artistic process of creating, performing/presenting, and responding to demonstrate thinking skills in dance, music, theatre, and visual arts. 3. (3.1, 3.2) The student communicates through the arts. 4. (4.2, 4.3, 4.4, 4.5) The student makes connections within and across the arts to other disciplines, life, cultures, and work. <p>Science:</p> <p>K-1 SYS: Part-Whole Relationships: Identify parts of living and non-living systems.</p> <p>K-1 INQ: Making Observations: Answer questions by explaining observations of the natural world.</p> <p>K-1 APP: Tools and Materials: Use simple tools and materials to solve problems in creative ways.</p> <p>K-1 PS1: Push-Pull and Position: Forces are pushes and pulls. Motion is a change in position.</p> <p>2-3 SYS: Role of Each Part in a System: See how parts of objects, plants, and animals are connected and work together.</p> <p>2-3 INQ: Conducting Investigations: Carry out investigations by using instruments, observing, recording, and drawing evidence-based conclusions.</p> <p>2-3 APP: Solving Problems: Develop a solution to a problem by using a simplified technological design process. Investigate the use of tools.</p> <p>2-3 PS1: Force Makes Things Move: Forces on objects make them move. Changes in force will cause changes in the motion.</p> <p>2-3 PS2: Properties of Materials: the properties of an object depend on its shape and on the material it is made from.</p> <p>2-3 PS3: Forms of Energy: Energy comes in different forms.</p>
<p><u>Next Generation Science Standards</u></p> <p>K-PS2-1: Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.</p> <p>K-PS2-2: Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.</p> <p>2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p>	





Glossary

The following terminology is addressed through the museum visit, pre-visit lesson plans, and post-visit lesson plans:

2-D or two-dimensional: an object that is flat—having height and width.

3-D or three-dimensional: an object that has height, width, and depth and can be viewed from multiple points of view.

Aerodynamic: designed with rounded edges to reduce wind drag. An aerodynamic vehicle will have increased fuel efficiency.

Antenna: wire attached to a vehicle that receives or sends out electromagnetic waves (for the radio).

Automobile: a passenger vehicle designed for use on ordinary roads and typically having four wheels and a gasoline or diesel internal-combustion engine. “Auto” means “self”, “mobile” means “moving.”

Axle: the pin, bar, shaft, or the like, on which or by means of which a wheel or pair of wheels rotates.

Body: external, enclosing part of the car: roof, fenders, doors, floor, hood, trunk, etc.

Bumpers: heavy rubber or chrome pieces on the extreme front and rear of a car designed to absorb shocks in an accident.

Car: a motor vehicle with four wheels; usually propelled by an internal combustion engine.

Characteristics: a feature that helps to identify or describe an object.

Chronological: in order of time or occurrence.

Classify: to organize objects based on similar or differing characteristics.

Color: what the eye sees when a wavelength of light is reflected from a surface.

Design: a plan for an object or work of art.

Door: a movable structure used to close off an entrance, typically consisting of a panel that swings on hinges or that slides or rotates.

Emphasis: use of contrasts (color, size, shapes) to place greater attention on specific parts of artwork.

Energy: a source of usable power, such as petroleum or coal; usable heat or power; the capacity of a physical system to do work. Living systems (plants and animals) also need energy to function; ability of a system to do work.



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Engine: a machine that turns energy into mechanical force or motion.

Force: push or pull that gives energy to an object, causing it to start moving, stop moving, or change its motion; a force is that can cause an object with mass to accelerate.

Fender: any of the corner parts of the body of a motor vehicle that surround each wheel.

Gravity: the force of attraction between all masses in the universe; especially the attraction of the earth's mass for bodies near its surface; the natural force of attraction exerted by a celestial body, such as Earth, upon objects at or near its surface, tending to draw them toward the center of the body.

Headlight: small, white or amber lights at the front of the car.

Hood: part of a car's body that opens and closes to provide access to an engine compartment.

Hubcap: a typically round cover that protects the outside of the central part of a vehicle's wheel.

License plate: a thin flat piece of metal showing the registration number of a vehicle, usually attached just above the front and back bumpers.

Motion: change in the relative position of the parts of anything; action of a machine with respect to the relative movement of its parts; the act or process of moving from one place to another.

Pattern: repeating sequence of lines, shapes, or colors.

Power: the energy or motive force by which a physical system or machine is operated

Pull: to draw or haul toward oneself or itself.

Push: to press upon or against (something) with force in order to move it.

Rear view mirror: a mirror on a motor vehicle enabling the driver to see traffic coming behind him or her.

Rim: wheel of a car minus the tires.

Shape: a 2-dimensional, enclosed space.

Side mirror: mirror attached to side of vehicle (windshield or the outside of the front door), allowing the driver to see behind the vehicle.

Speed: the rate or a measure of the rate of motion; distance traveled divided by the time of travel; how fast an object moves.

Steering wheel: a round device in front of the driver's seat of a vehicle, that when turned, allows a driver to control the direction of the front two wheels.

Taillight: a red light, usually one of two, mounted at the rear of a vehicle.



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Tail Pipe: part of the exhaust system that carries exhaust from a muffler to the rear of the car.

Tires: rubber covers for the road wheels that provide good traction.

Transportation: the act of moving something from one location to another; an object that moves something from one place to another.

Trunk: automobile's storage compartment, usually at the rear.

Vehicle: something that transports people or objects from one place to another.

Wheel: a simple machine consisting of a circular frame with spokes (or a solid disc) that can rotate on a shaft or axle (as in vehicles or other machines); combination of the rubber tire and the metal rim which a tire is mounted around.

Windshield: safety glass used to protect drivers and passengers from wind and weather, and to provide maximum forward visibility.



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1937 Chrysler Airflow



1951 Studebaker



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1959 Chrysler 300 E



2012 No. 5 Farmers Insurance Chevrolet



1954 Pontiac Chieftan Deluxe Eight



1921 Ford Model T



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2005 Momentum

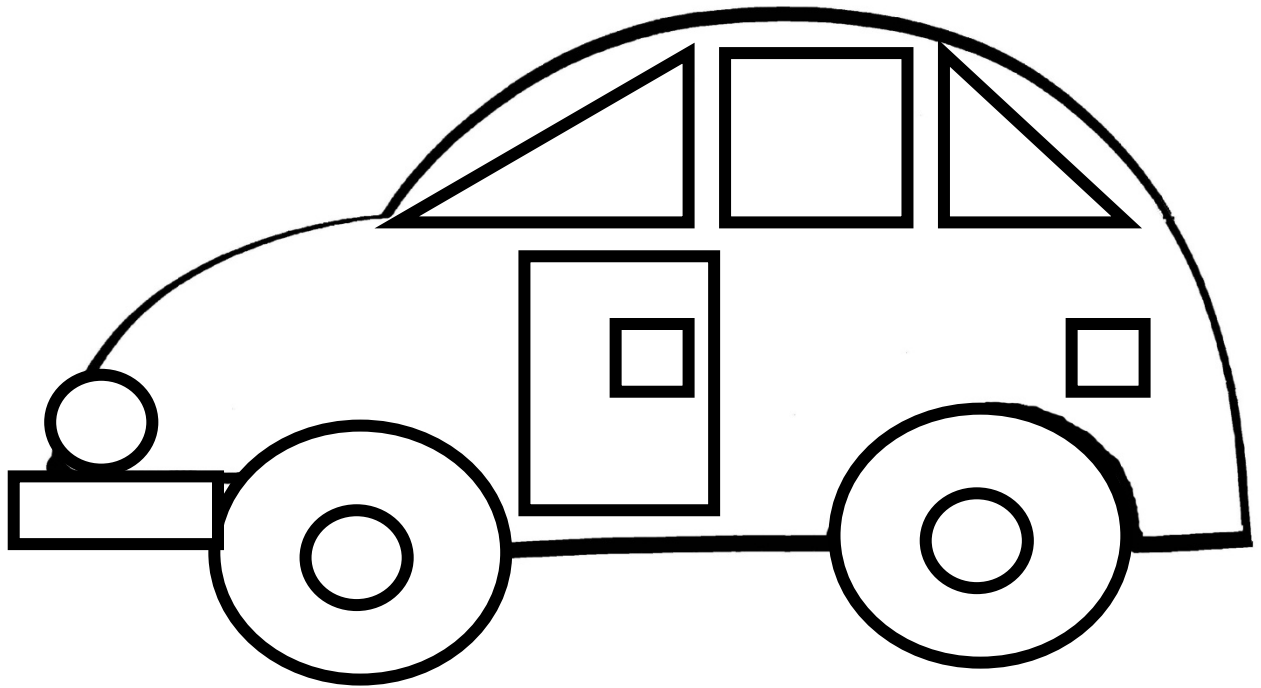


1937 Fiat Topolino

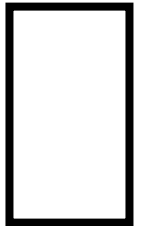


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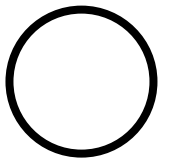
Counting Car Shapes



1. There are _____ rectangles.



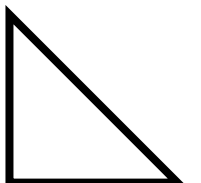
2. There are _____ circles.



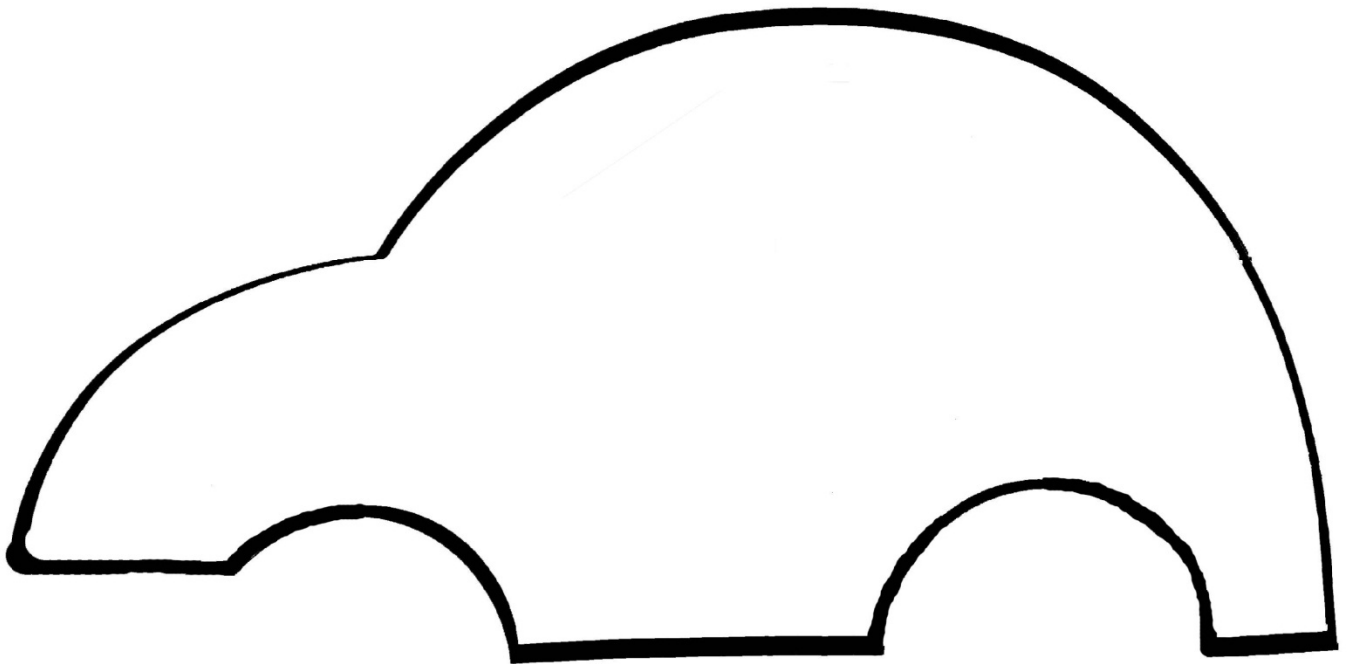
3. There are _____ squares.



4. There are _____ triangles.

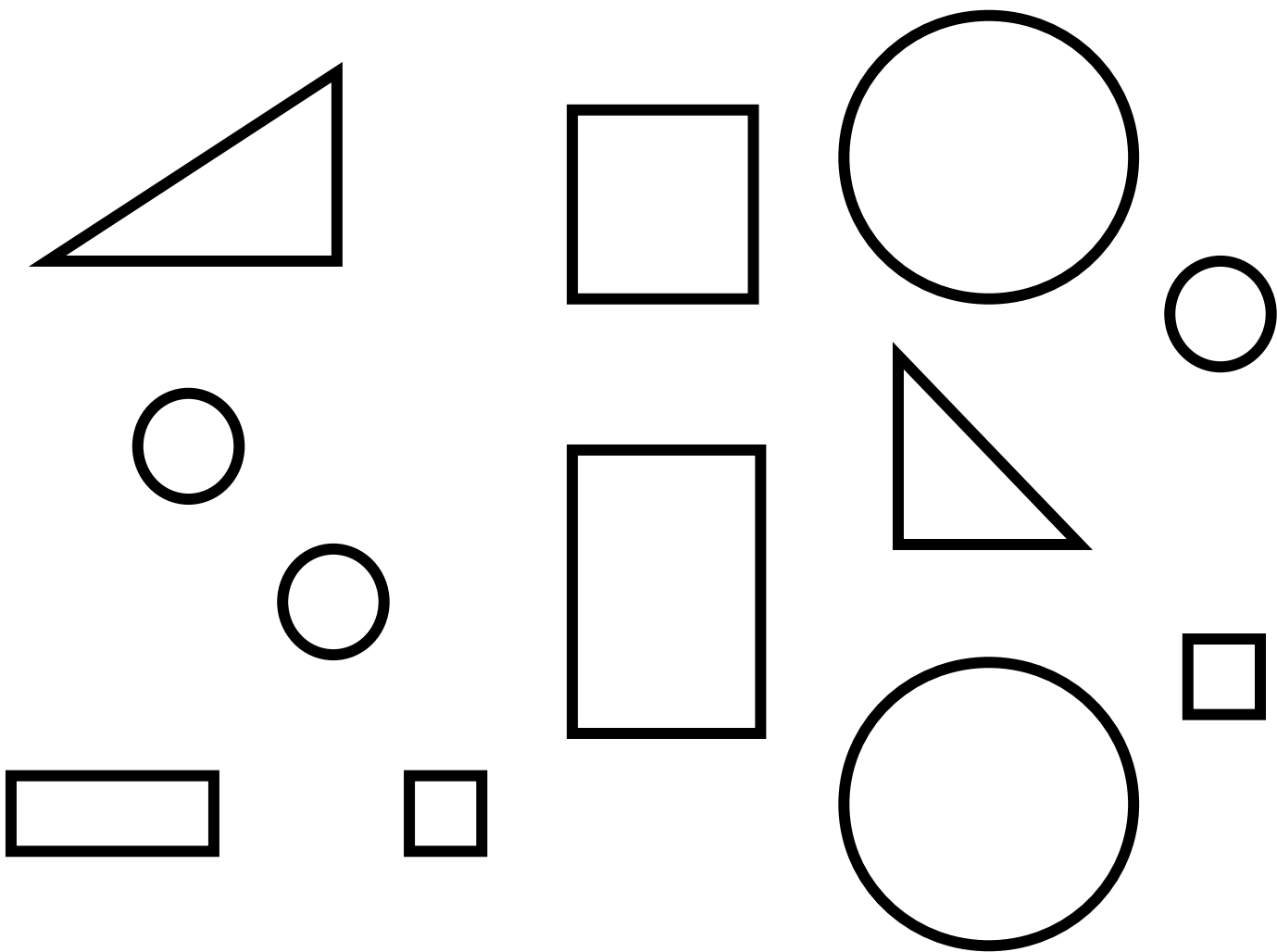


Car Outline



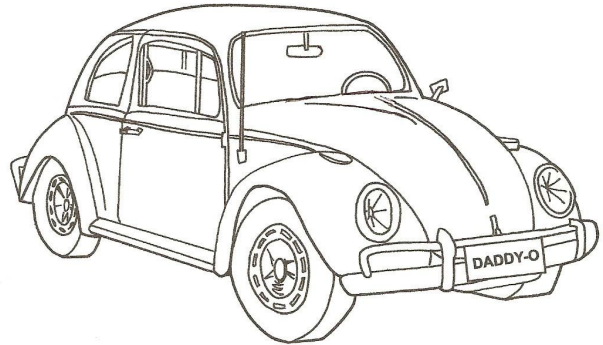
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Car Shapes



The New Car

Charlie and Elijah went with their dad to buy a new car. Together they chose a car that they all really liked. The roof and sides of the car were bright red, and the **fenders** were black. The car had two bright round **headlights** above the front **bumper**.



Their dad decided to order a special **license plate** that said DADDY-O. Charlie thought it was embarrassing, but Elijah liked it. The car's **tires** had shiny silver **hubcaps**, and the **hood** of the car was painted silver to match. Before their dad got in the car, he carefully cleaned the **windshield** so that he would be able to see clearly.

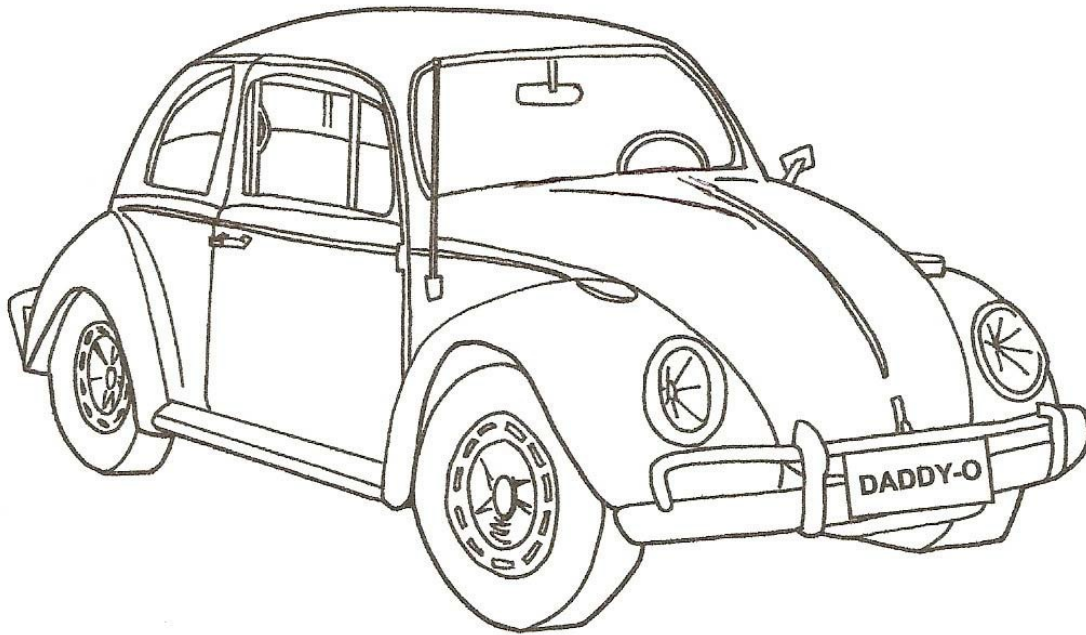
When their dad opened the **door** on the passenger's side, he had the boys get in the back seat and helped them buckle up their seatbelts. Then he got in and put on his seat belt. Before driving away he carefully checked his **side mirror** and his **rear view mirror** to make sure he could see what was next to him as well as what was behind him.

Finally, he put his key in the ignition below the **steering wheel** and started the car's engine. He took off the parking brake, pressed gently on the gas pedal and pulled out of the car lot. As he drove away, he and the boys sang songs until they got home to show their mom the new car.

Their mom loved the new car, too. She said that it looked like it would be a great car for the family to travel in together. They all started to talk about all the adventures they would have in their new family car!



Label the Car Parts

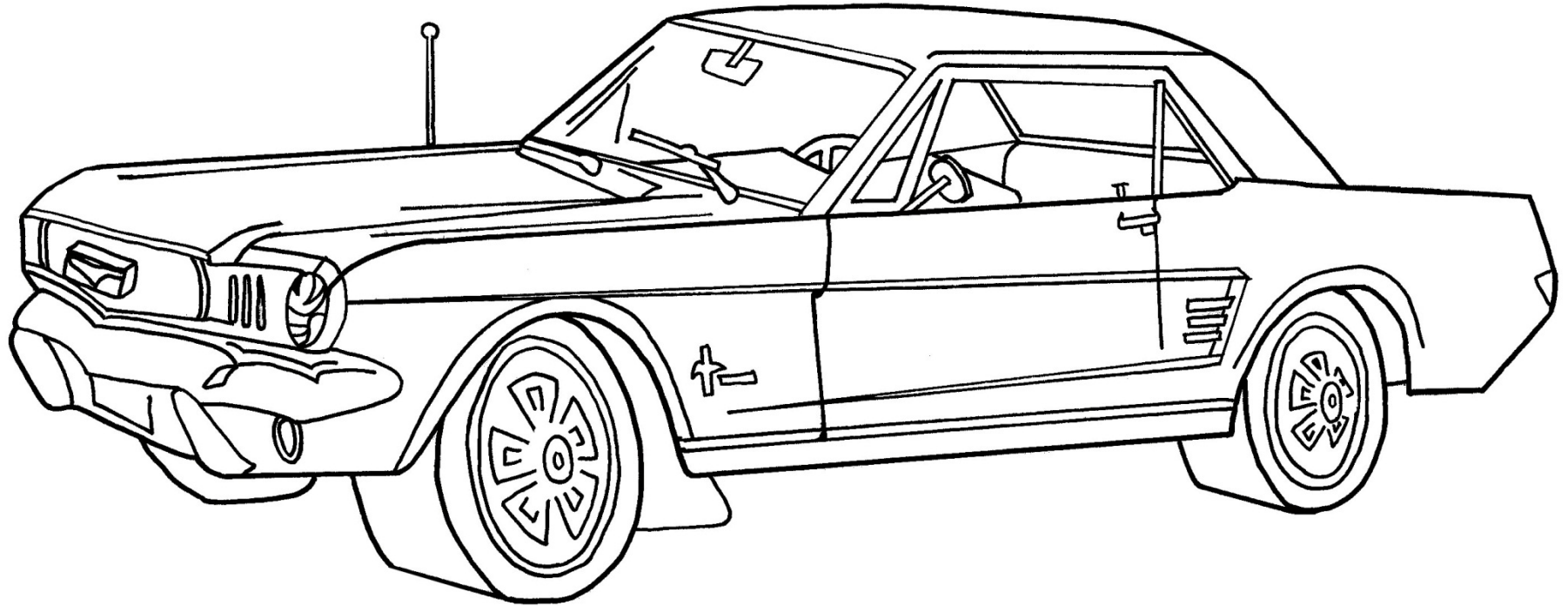


Use these words to label the drawing:

<input type="checkbox"/> license plate	<input type="checkbox"/> tire
<input type="checkbox"/> bumper	<input type="checkbox"/> door
<input type="checkbox"/> headlight	<input type="checkbox"/> rear view mirror
<input type="checkbox"/> hubcap	<input type="checkbox"/> side mirror
<input type="checkbox"/> windshield	<input type="checkbox"/> hood
<input type="checkbox"/> steering wheel	<input type="checkbox"/> fender



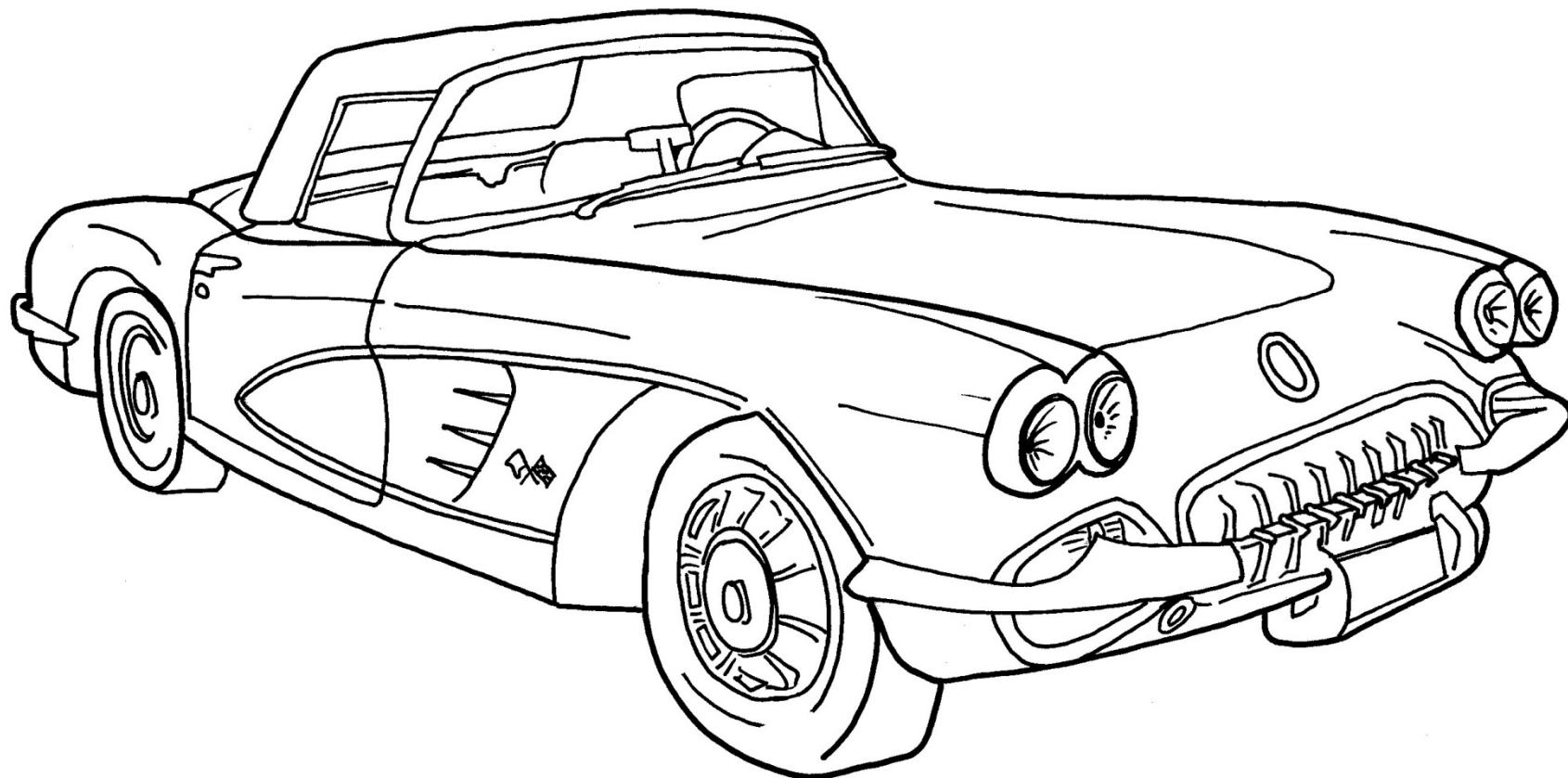
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1966 Ford Mustang



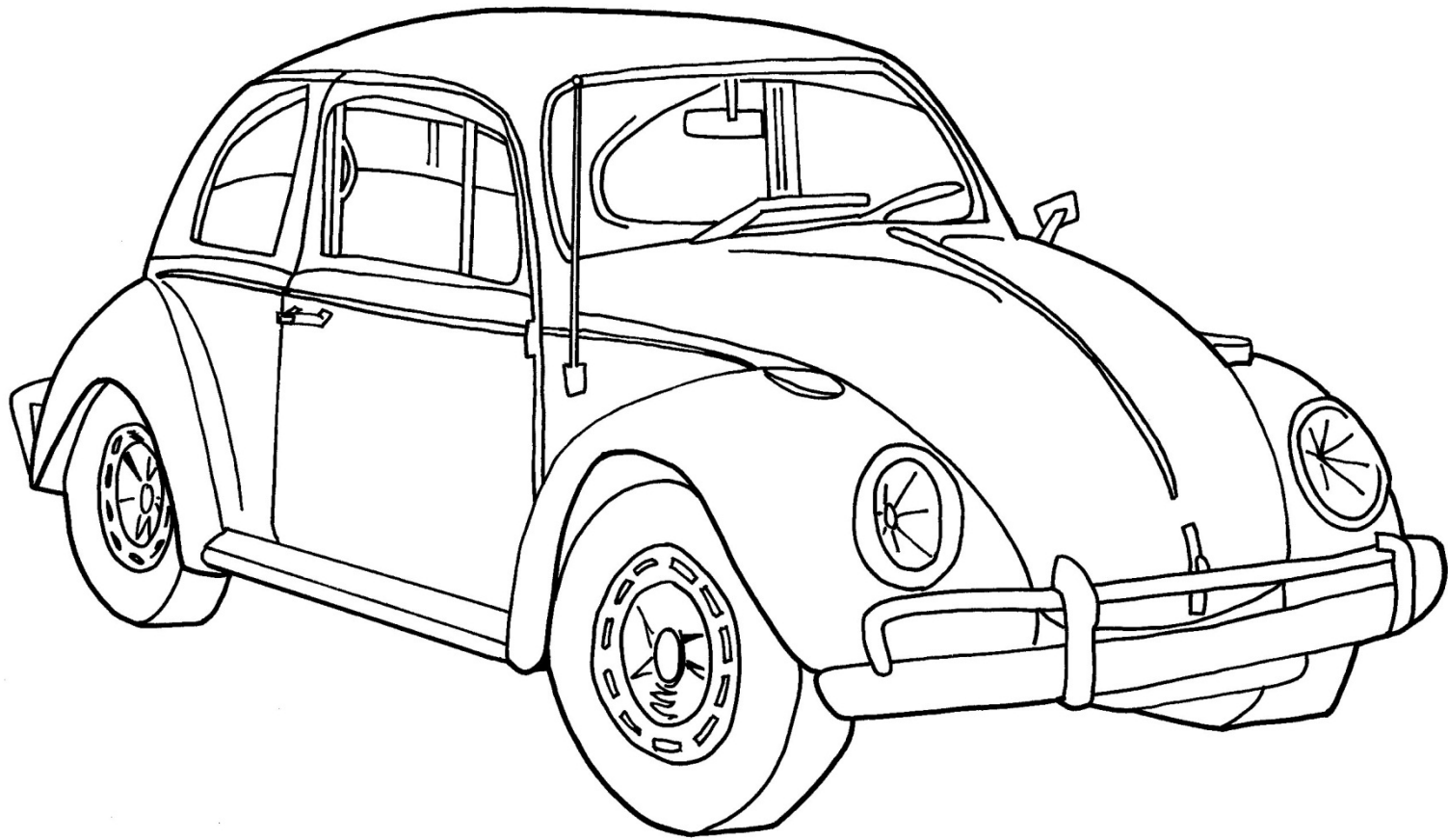
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1960 Chevrolet Corvette



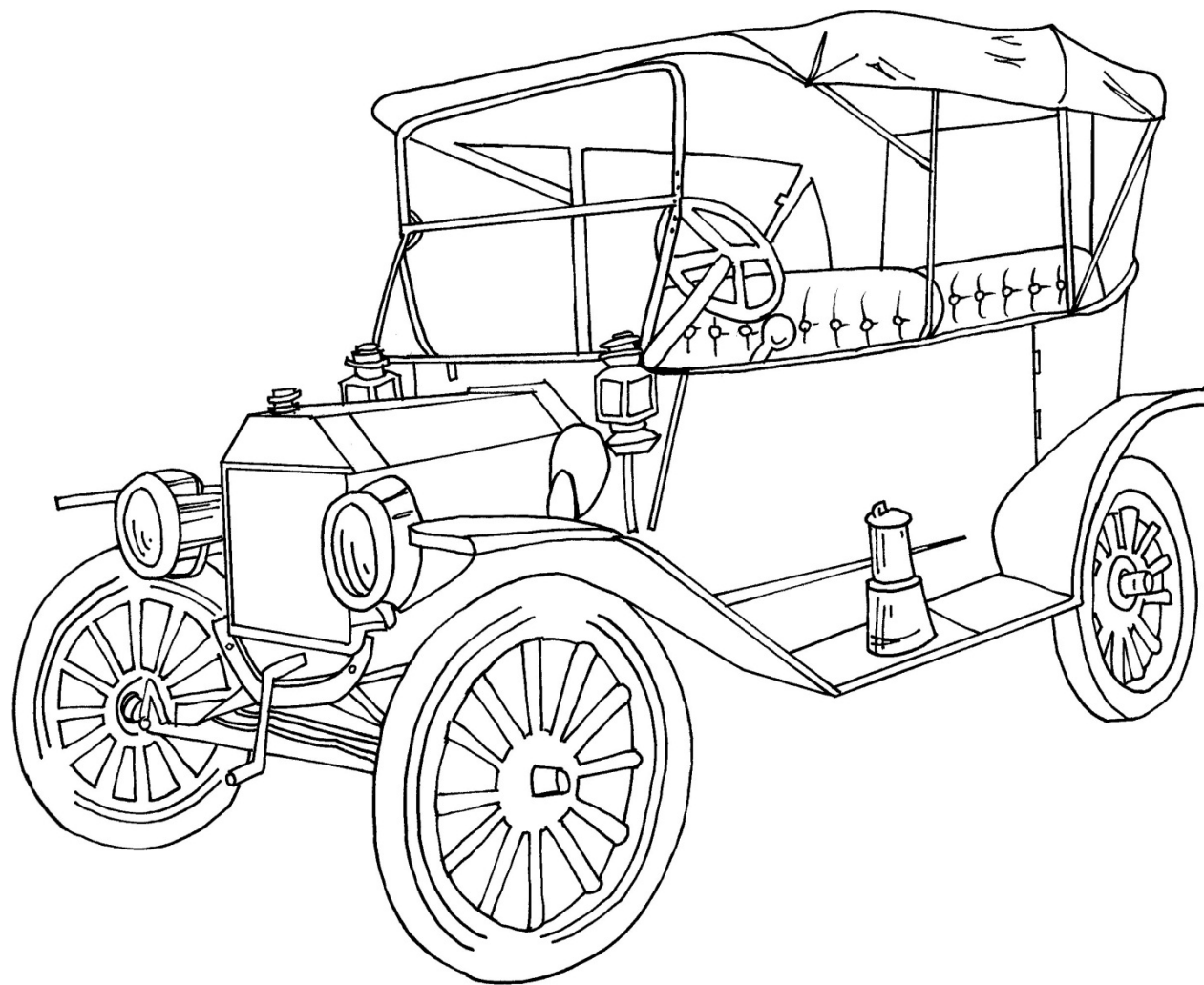
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1966 Volkswagen Beetle



AMERICA'S CAR MUSEUM®



1908 Ford Model T



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