

Cars & Engines unit study

Build a homeschool curriculum around cars — mechanics, physics, design history and the economics of manufacturing, for K-12 learners.

GRADE BANDS K-2 · 3-5 · 6-8 · 9-12

FULL GUIDE <https://handsdowneducation.com/homeschool/cars>

How to use this planner

The six weeks below are sequenced from the guide's sample week: five weeks that each take one core subject through the topic, then a showcase week that turns the portfolio into a final product. Run each activity at the level your child is at (the grade band notes tell you how), keep the output, and by week six you have a portfolio that shows the unit end to end.

Pace is yours. A week here is three to five working sessions; a topic that is going well can take two calendar weeks, and one that has run dry can be closed early. Tick the box when a week's output is in the portfolio.

Six-week scope and sequence

Wk	Focus	Key activity	Portfolio output	Done
1	Reading & Writing through cars & engines	Read about Ford's assembly line and its human cost, then write a persuasive piece arguing for or against the trade it made — cheaper cars, harder work.	Portfolio entry: the week's reading & writing piece, dated, with one line from your child on what they found out.	☐
2	Math through cars & engines	Calculate real fuel efficiency from your family's odometer and fill-ups, then compute the cost per mile — and what an EV would change.	Portfolio entry: the week's math piece, dated, with one line from your child on what they found out.	☐
3	Science through cars & engines	Diagram the four-stroke cycle, then build a working syringe-and-tube hydraulic lifter to show force multiplication in braking systems.	Portfolio entry: the week's science piece, dated, with one line from your child on what they found out.	☐
4	Social Studies through cars & engines	Trace where the parts of one car model are made and map the supply chain across countries — globalization made concrete.	Portfolio entry: the week's social studies piece, dated, with one line from your child on what they found out.	☐
5	Art through cars & engines	Sketch three eras of car design (1930s, 1960s, today) and write what each shape says about what people wanted at the time.	Portfolio entry: the week's art piece, dated, with one line from your child on what they found out.	☐
6	Showcase and review	Choose one final product that pulls the unit together — a presentation, an exhibit, a field guide or a short documentary — and give the week to making it. Finish with a portfolio review: lay every week's output on the table and let your child narrate what changed in what they know about cars & engines.	The final product plus a one-page unit summary in your child's words, filed with the portfolio.	☐

Running it at your child's level

K-2 learners name parts, sort vehicles by purpose, and explore ramps and rolling — genuine early physics with toy cars as the apparatus.

Teens can go deep into engine thermodynamics, electric versus combustion tradeoffs, and real maintenance skills — changing oil is a lab and a life skill at once.

A sample week, subject by subject

Reading & Writing

Read about Ford's assembly line and its human cost, then write a persuasive piece arguing for or against the trade it made — cheaper cars, harder work.

Math

Calculate real fuel efficiency from your family's odometer and fill-ups, then compute the cost per mile — and what an EV would change.

Science

Diagram the four-stroke cycle, then build a working syringe-and-tube hydraulic lifter to show force multiplication in braking systems.

Social Studies

Trace where the parts of one car model are made and map the supply chain across countries — globalization made concrete.

Art

Sketch three eras of car design (1930s, 1960s, today) and write what each shape says about what people wanted at the time.

Common questions

Do we need a car to work on?

No. Diagrams, cutaway videos and simple builds carry the science. If a willing mechanic or a project car is available, that's an excellent bonus rather than a requirement.

Is this still relevant with EVs coming?

More so. Comparing combustion and electric drivetrains is one of the better engineering-tradeoff studies available, and covers batteries, motors and grid load.

How does this teach the humanities?

Through labor history, the economics of mass production, and the environmental policy debates that now shape the entire industry.

Turn this into a full, standards-aligned curriculum

Generate a complete plan around cars & engines for your child's grade and pace — free to try, no account required.
<https://handsdowneducation.com/curriculum/generate>