


LOW + SLOW

*STEMarts Lowrider Design Challenge
Lesson Guide*

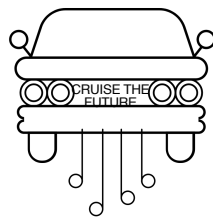


OVERVIEW

STEMarts Lab is excited to partner with Seco Live to create the *Lowrider Design Challenge* that complements the Low 'N Slow exhibit, produced by Seco Live, a 501c3 building community through creativity in the village of Arroyo Seco, New Mexico. *Low 'N Slow* is an immersive outdoor experience for art lovers of all ages providing a multi sensory tour through the world of lowrider arts and culture in Northern New Mexico. The Lowrider exhibit is curated by the prolific voice of New Mexico artist, Toby Morfin. The exhibition takes visitors through every aspect of lowrider culture from hydraulics, pinstriping and tattoo classes to lowrider movie cult classics and interactive community gathering experiences all summer through October 10, 2021. Low N' Slow is a satellite exhibit that emerged from the Harwood Museum of Art exhibit: *Santo Lowride: Norteño Car Culture and the Santos Tradition*. Encourage your students to visit the *Seco Live Low 'N Slow* exhibit and the Harwood Museum of Art *Santo Lowride* exhibit to inspire their designs! Don't miss the *Santo Lowride Cruise@Taos Plaza, A Norteño Lowrider Cruise and Car Show* on September 25, 2021.



The theme of the Lowrider Design Challenge is '*Lowrider of the Future*'. Guide students as they delve into the history of the lowrider to understand its artistic and cultural significance, as well as hydraulics and engineering, to inform their designs. At the same time they will research the latest scientific and technological innovations to ask, how might a lowrider look in the future if they applied these new innovations to a lowrider design? How might it improve its hydraulic system, become more sustainable, change its style? How can we maintain the cultural connection while applying futuristic design?





LOWRIDER FUTURES

"When people are supported to become creative and rigorous futures imaginers, they come to realize that the future is not something that will happen to them tomorrow but is being created by everyone today." Riel Miller (2003)



Lowriders have a complex balance of tradition and innovation that make them both timeless and cutting edge. In this design challenge, students learn about the lowrider of today and imagine the lowrider of tomorrow to inform their design.

Lowriders are more than just cars, they have a unique American history, values, and community. What does the future hold for lowrider? The future can refer to a place in time that we arrive to- like a destination, but the future also refers to the processes that are actively shaping change and our experiences of it. *Futures Thinking* tells us that the future is not something that will happen to you tomorrow but is being created by everyone today. By asking these questions today we can become the visionaries to inspire the next generations of Lowrider.

Discuss with your students the videos and ideas about lowrider culture and identity, how they work now and in the future. Include the "future" context in which lowriders cruise. What does the science look like? What does the community look like? How does your lowrider interact in the environment? Create your vision of the lowrider of the future.

What are the lowriders of the future?

What does lowrider culture look like now and in the future?

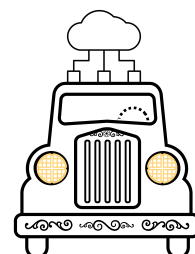
What does transportation look like in the future in 20, 50 or 300 years?

What does "low and slow" mean to Lowriders of the future?

What paints, parts and styles do lowriders of the future reflect? How are they made and what powers them? How do they respond to their environment? For example: is the car self driving?

How do they express identity as an individual or a community? What might cruising look like? What innovations will we see?

What do lowriders look like around the world? In space? At home?



GETTING STARTED



Get Started



Design Tool



Low 'N Slow



Interviews

Access all the tools and resources through the Lowrider Design Challenge Menu to create a lesson plan and classroom project around the topic of Lowrider culture, art, technology, science and design for the future.

Get Started provides the overview on the ‘Lowrider of the Future’ theme, the learning objectives of the project, science standards, and submission guidelines.

Design Tool outlines the stages of the design process for you and the students to access directly. It also includes the **STEAM Wiki** which is the heart of curriculum tool. It contains all the content to inspire and inform the students designs through curated links.

Low 'N Slow links to information about the artist/curator Toby Morfin, local lowrider exhibitions and artists. It includes Toby’s curatorial statement and a personal message from the artist. This page also includes a slider of spectacular photos of lowrider and links to the Interview videos.

Interviews provides four video interviews of artists from the Low 'N Slow explaining their creative process and techniques. These videos were produced by Seco Live.

Winners. Once the winning entries have been selected we will be adding this new icon and post the winning images which will include Best of Show and other categories, including a prize for Best Teacher Curriculum Integration.

STEMarts DESIGN TOOL

Jump into the Low’N Slow Design Challenge design tool which takes you and your students through the stages of the ‘Lowrider of the Future’ design process. Get started with these basic steps.

Explore. This is the first stage of the design process. Prepare activities that explore lowrider culture and artistic practice with your students. Have them explore the STEAM wiki using the *Explore* keyword to access the curated links, articles and videos about lowriders. Have then use the keyword *Futuristic* to find futuristic innovations to inspire their designs.

Research. In this stage guide your students through the research links to discover the science and technology behind the lowrider cars to inform their designs. If you have time do some hands-on hydraulic experiments that we have includes in the STEAM Wiki. Orlando Martinez walks them through hydraulics in his video interview. Have students log their findings and resources as they will need to refer to this when they write their *Design Statements*.

Brainstorm. In this stage have your students work in teams to share what they learned, have class discussions, and finally start sketching and writing down their ideas in a journal, notebook or sketchpad. Encourage them to explore several iterations and help them hone in on the features that make their lowrider stand out. Facilitate the selection of materials and processes i.e.pencils, color markers, iPad drawing apps, graphic software, etc.

Design. Once students have settled on their concept they can transfer their favorite design on to the 11” x 17’ paper that will be provided or print out their design on to the paper. Have them start writing their design statement as this process can further inform and inspire the design.

Submit. The final stage is to notify us when all the student drawings are ready for pick up. The Design Statements should be sent electronically following the submission guidelines. Have fun learning about lowriders and good luck!

STEMarts Design Tool

Explore	Research	Brainstorm	Design	Submit
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Explore the art and culture of lowriders

Visit the Low N' Slow exhibit page to learn about its featured artists and to understand the artistic and cultural significance of lowriders. Visit Arroyo Seco to see the Low 'N Slow exhibit in person. Check out the Harwood Museum of Art to see the Santo Lowride: Norteño Car Culture and the Santos Tradition exhibit and don't miss the Taos Plaza Takeover on September 25, 2021 to see the lowriders in action at the Lowrider Cruise and Car Show. Watch and discuss the Interviews with the Low N' Slow artists to go behind the scenes and learn about their creative process and techniques. Explore the STEAM wiki for ideas to inspire your own lowrider car!

STEAM-Wiki

The STEAM-Wiki contains all the curriculum content to inspire and inform the students designs through curated links. Here you will find links to articles, images, video, and tutorials that we have collected from the web around the topic of Lowrider art and culture as well as the science and technology behind lowrider cars.

You can navigate the STEAM-Wiki by entering keywords into the search field or clicking through the word cloud. Word clouds visualize the amount of information available on a topic - the bigger the word in the cloud, the more links to discover.

All our links are age-appropriate for middle and high school students but note that some lowrider culture links online may have adult content or images, which would require your supervision to monitor access.

The STEAM-Wiki is just a starting point, the keywords below are for organization and can be explored at any point in the design process. We encourage you to do your own research to see what you find. You can type in keywords for each stage of the design process: Explore, Research, Brainstorm, Design and Submit. This will give you resources that you need for each stage of the design process.

STEMarts WIKI KEYWORDS:

EXPLORE

Artists
Culture
Lowriders
New Mexico
Low'n Slow
Santo
Lowride
Futuristic

RESEARCH

Lowriders
Hydraulics
Pinstriping
Chrome
Future Cars
Future of
Transport
Inspiration in
Nature
Hopper
Bike

BRAINSTORM

STEM
Innovation
Technology
Physics
Science
Sustainability

DESIGN

Materials
Finishes
Paint
Pinstriping
Smart Textiles
Ethics

SUBMIT


**keywords are not used for the submission phase. The above link will take you to submission guidelines under the Get Started page from STEMartsLab*

NEXT GENERATION SCIENCE STANDARDS

All STEMarts projects include the application of science and technology through art and design. Projects are designed to the Next Generation Science Standards (NGSS). The National Research Council (NRC) of the National Academy of Sciences released the Next Generation Science Standards (NGSS) which lay out the disciplinary core ideas, science and engineering practices, and crosscutting concepts that students should master in preparation for college and careers. We also design to the P21 standards. The P21 Framework for 21st Century Learning was developed with input from educators, education experts, and business leaders to define and illustrate the skills, knowledge, expertise, and support systems that students need to succeed in work, life, and citizenship. The Framework continues to be used by thousands of educators and hundreds of schools in the U.S. and abroad to put 21st century skills at the center of learning. All elements of the Framework are critical to ensure 21st century readiness for every student.

The Lowrider Design Challenge is a cross-disciplinary art project designed to the Next Generation Science Standards (NGSS) in several categories. Visit the Standards page on the website and check out the STEAM-Wiki under the search word 'Standards' to access all the PDFs about engineering design in the NGSS. Our hope is that the process of designing a 'Lowrider of the Future' will provide a fun and creative platform to develop essential engineering design skills through imaginative futures thinking.

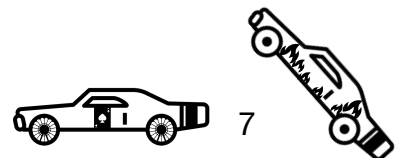
To learn more about how STEMarts uses the NGSS or more information on specific standards please visit: <http://www.stemarts.com/biosteam/standards>

 NEXT GENERATION SCIENCE STANDARDS

Core Idea ETS1: Engineering Design

ETS1.A: Defining and Delimiting an Engineering Problem
ETS1.B: Developing Possible Solutions
ETS1.C: Optimizing the Design Solution

Engineering



LOWRIDER DESIGN CHALLENGE

The Lowrider Design Challenge and prizes are made possible thanks to our sponsors, [Seco Live](#) and the Taos Revolt Giving Fund@[Revolt Gallery](#).

Cash prizes will be awarded for Best of Show (\$300) and several categories such as *Best Traditional Design*, and *Best Futuristic Design* (\$100 ea). There will also be a *Best Teacher Curriculum Integration Award* (\$100). Please use the registration form below to participate.

The Design Criteria Rubric below can be used to guide students as they research and design their 'Lowrider of the Future'.

DESIGN CRITERIA		
<i>The Design Criteria is used by Challenge judges to select winners and prizes.</i>		
Creativity	The design is creative in its concept, style and artistic application	2
Science & Technology	Research-based science and technology is reflected in the design	2
Style & Craftmanship	The design reflects effort and attention to detail and a stylish and professional presentation	2
Cultural Connections	The design demonstrates understanding of the cultural significance of lowriders	2
Sustainable Practices	The design applies a creative and innovative use of sustainable materials or practices	2
Futuristic Innovation	The design shows exceptional and imaginative solutions for a lowrider of the future	2

SUBMISSION GUIDELINES

1. The final design of the Lowrider car must be created onto an 11" x 17" paper that we will provide.
2. The design can be hand drawn using any medium (color markers, colored pencils etc.). It can also be computer generated and then printed on to the assigned paper.
3. The final 11" x 17" student designs will be collected by our team on Monday September 25, 2021.
4. The name of the student must be clearly printed on the assigned paper as follows:
(School_student name_ grade)
5. Once the student lowrider design is complete, students must write a design statement (300 words max). This is an important part of the challenge. It is the students' chance to demonstrate to the jurors how they addressed the design criteria (rubric): the concept for their lowrider, the science and technology behind the design, culture and sustainability, and what makes it unique.
6. Collect and label all design statements as follows: Each student file:
(School_student name_ grade). School folder containing all files:(Lowrider_School name_grade_year).
7. Note the schedule to assure that you meet all the submission deadlines

SCHEDULE

August 15, 2021: School Registration deadline

August 20, 2021: STEMarts Lab delivers 11" x 17" paper to schools

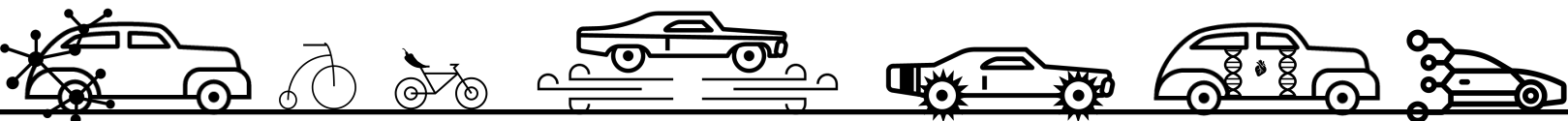
September 22, 2021: Complete all student designs

September 25, 2021: Student designs will be picked up at schools

September 28, 29, 2021: Entries will be judged

October 10, 2021: Winners/Awards announced at Seco Live event and this website

*These submission details can also be found in the [Get Started page](#).



INSPIRATION RESOURCES (STEMarts Favorites)

Below are some of the links STEMarts recommends to get started. You can go deeper into the topics using the STEAM Wiki in the Design Tool.

[Lowrider Design Challenge](#)

[Low N' Slow](#)

[Santo Lowride](#)

[Toby Morfin](#)

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[How Lowriders Work](#)

[NMPBS ¡COLORES!: Lowriding in New Mexico](#)

[Machine Dreams](#)

[The Science Of Hitting Switches](#)

[Can a car really skip rope?](#)

[Pascal's Law](#)

[Hydraulics | GCSE Physics | Doodle Science](#)

[How low-rider graphics are painted on cars](#)

[How butterflies inspired a new type of paint](#)

[12 Trends that will shape the future of the car industry by 2030](#)

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