

STEAM: Design Your Own Stagecoach

Stagecoaches in the Old West had to be functional as well as beautiful. Use this worksheet to design your own original stagecoach, based on the technology you learned about in the STEAM program.

Now that you've seen how actual stagecoaches were built, it's time for you to make your own stagecoach using what you have around you! First, think about the shapes you saw in the undercarriage of the stagecoach during our program. This a simple wheel and axle design—try to replicate it! Next think about what you need to build the carriage which sits on top of the chassis (wheel and axle system).



Think it! Look around your house for materials you think you could use to make a stagecoach (recycled cardboard, cereal boxes, disposable drink lids, straws, sticks, paper, and boxes). List what you find, as well as how you will use it.

Discuss it! Now that you have a good idea for the kinds of materials you may want to use, make a pro's and con's list for each item you chose. Feel free to make a longer list on another sheet if you need more room.

Pros	Cons

Sketch it! An important step in design is knowing what you want your final product to look like before you start. Use this space below to draw the way you want your carriage and chassis to look when they are connected together. Feel free to even draw a couple of designs.

Build it! Now that you know what materials you want to use and how you want it to look, it's time to put it all together. Connect your wheels to the axles in the way you have decided is best. Add the carriage on top (**NOTE:** see the next page if you want to add artwork to your carriage before you attach it).

Test it! You did it, but the work isn't over. Now you need to play with your design and try to find any potential problems or weaknesses. It's okay if your first design didn't work exactly like you wanted it to, making

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changes is a part of the design process! Write down any problems you find with your wheels, then use this sheet to design a solution!

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Stagecoaches were more than just machines. They often had beautiful artwork painted on their doors. These paintings usually showed Western landscapes, intended to make people want to go out to the West to see the land for themselves. Other stagecoaches had simple designs around the doors and windows to make the stagecoach prettier to look at. **Sketch your carriage design and use the pictures below as inspiration for the kind of art you would want on your stagecoach.**



Images from Hansen Wheel and Wagon Shop

A large, empty rounded rectangular box intended for sketching a stagecoach design.

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Now that you've designed your stagecoach, it's time to prepare it to for some unexpected challenges. Use the space below to brainstorm what kind of changes you would make to your stagecoach to make it best suited for the prompts.

Challenge 1: Stagecoaches have been out of style for over 150 years now, but let's pretend they are starting to come back into style. How would you update your coach to make it more popular today? What would you add to make people choose your coach over a modern car?

Challenge 2: When traveling across the old West, stagecoaches encountered all kinds of unexpected situations. One day, your coach is traveling when it comes to a flooded river. How would you modify your coach to cross the river safely and quickly?

Challenge 3: In the early 1800's many people didn't know what to expect when they went out West for the first time. Some people even thought the land would be full of giants and monsters. How would you modify your coach to protect it from a dragon attack?
