

Girl Scout Daisies Badgework

Mechanical Engineering: Model Car Design Challenge (Badge 3)

Step 1: Design and build model cars in Wonder Works

- ☐ Before an engineer builds something, she thinks about the best way to do it. Engineers will brainstorm ideas about how to build their invention with the materials they have. Your challenge is to build a car that you can test drive on different surfaces to see how friction impacts your car's speed. Using the Duplo Test Track from *Wonder Works*, what are some different ways you can make a car to test?

Automotive Engineering: Automotive Design (Badge 1)

Step 1: Choose special features for your vehicle in TechPlay

- ☐ Vehicles are made up of lots of parts. Some parts are in every vehicle, like the engine and the wheels. Other parts are special just for that kind of vehicle. These parts are called design features. In *Tech Play*, choose a vehicle template. On the back, brainstorm a list of special features your vehicle will include. This could be something simple like cup holders and racing stripes, or more complex like wings or doors that open by themselves.

Step 2: Design your vehicle in TechPlay

- ☐ A creative designer comes up with ideas for vehicles and draws them. Color the exterior of your vehicle! What different colors will you use? What other features will you add? Want an extension, grab a blank piece of paper and sketch what the inside of your car will look like.

Step 3: Sculpt and share your vehicle in TechPlay

- ☐ Making a model is an important part of designing a vehicle. Take your finished drawing on the vehicle template, and scan your model so it can be printed and then folded into a 3D model. Cut, fold, and glue your design. Share your plans and finished product with a friend or family member.

Toy Business Designer

Step 1: Come up with an idea for a toy in the Art Studio

- ☐ Think of a new toy you would like to play with and then design it or find a way to make your favorite toy better! Sketch out your idea using materials from the *Art Studio*. Make more than one drawing if you want to show the different ways your toy works.

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Step 2: Make your toy even better in the Art Studio

- ☐ Any ideas on how you can improve or fix your toy? Entrepreneurs always want to improve their projects, so they ask other people for feedback. Share your toy with your friends or family. Invite them to tell you what they liked about your idea and what they would change to make your toy better. Use the feedback to make changes and improve your toy design. Draw your new and improved design!

Outdoor Art Maker

Step 1: Hear the sounds of nature in Nature Play, Front Play Garden or Sunshine Classroom

- ☐ Search for sounds in nature. Visit the outdoor exhibits at The Magic House. Use your ears to hunt for as many sounds as you can from the list below. Listen carefully and circle the ones you hear.

Insects buzzing/humming

Dog barking

Car horn honking

Leaves rustling

Bird chirping

Squirrels or chipmunks chattering

Do you hear any other sounds?

Step 2: See the colors of nature in Nature Play, Front Play Garden or Sunshine Classroom

- ☐ Have a color hunt! Go out to play in the *Front Play Garden* and have an adult set a timer for ten minutes. Try to find as many things in nature that match the colors that you are wearing. For example, if you are wearing yellow socks and you see a yellow flower, that's one!
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