Toy Car Motion Challenges

Materials: Toy cars (at least 2), other materials to use to push cars or to build ramps, walls, etc.

*Be an **engineer** and investigate the following challenges and explorations. Experiment by placing the cars in different places and pushing them in different ways. Talk with a family member about **how** you completed the challenge and **why** you think it worked.*

Collision Challenges

- Put one car in the middle of the table. Push the other car into it so they collide, and…
  - neither car moves off the table.
  - one car moves off the table.
  - both cars move off the table.
  - at least one of the cars changes direction.
  - both cars change directions.
- Collide a car with objects of different sizes and shapes. Design a collision that…
  - makes the car stop
  - makes the car change direction
  - makes the object move or fall down

Surface Challenges

- Choose 2 or 3 different surfaces to push the car on (e.g., wood or tile floor, carpet, bathtub, etc.). Predict which surface it will go farthest on. Test your predictions using the same strength push. Measure and compare how far the car traveled using string, a ruler, or another method.
- Try to find a way to make the car go farther or faster on one of the surfaces you tried.
- Try to find a way to make the car go a shorter distance or slower on one of the surfaces you tried.

Ramp Explorations

- Make a ramp out of a propped-up box or blocks. Push the car down the ramp and explore…
  - pushing stronger or more gently.
  - covering the ramp with different materials (e.g., aluminum foil, plastic wrap, a towel, etc.).
  - having the ramp end on different surfaces (e.g., floor, rug, countertop, etc.).

Think of your own Challenges and Explorations!

Find more activities like this at: http://www.ucreadysetstem.com
Search and join the "UChicago Ready, Set, STEM!" Facebook group.
Then post and peruse pictures from this activity there in the
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