

| <h2>Lesson: Cardboard Ping-Pong Ball or Marble Run</h2>   |   |  |
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| <p><b>Objectives:</b><br/>Young engineers will define a problem: How to get a ball from one point to another then build a solution to that problem.</p> | <p><b>SD Standards/Common Core:</b><br/>Disciplinary Core Ideas:<br/>ETS1.A Defining Engineering Problems. A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (secondary to KPS2-2).</p> | <p><b>Supplies:</b></p> <ul style="list-style-type: none"> <li>• Thin cardboard cereal, cracker, etc. boxes</li> <li>• Scissors</li> <li>• Masking tape</li> <li>• Ping-Pong balls or marbles</li> <li>• Optional: other recycled materials (excluding glass or sharp objects...check tin cans for sharp edges)</li> </ul> |
|   |   | <p><b>References:</b><br/>Lesson adapted for AASP by Carl Fellbaum, April 2018.</p> <p>“Challenge: Design A Marble Run From Your Recycling Bin”. The Curious Kid’s Science Book: 100+ Creative Hands-On Activities for Ages 4-8 by Asia Citro</p>  |
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**Challenge** Can you design a working marble run using recycled items from your house?

**Additional challenges:** make it a slow race to have the longest travel time. Have engineers not talk while building. Build the longest run. Build one with three “jumps”.

**Getting Started** Demonstrate how to make various tubes and troughs out of cardboard and how to tape them to a wall table or chairs.

